"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.A.

Machine planting of sugar-beet transplants. Sakh.prom. 33 no.3: 48-50 Mr '59. (MIRA 12:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sakharnoy svekly.

(Sugar beets)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.A.

Machine seeding of sugar-beet transplants. Sakh. prom. 34 no. 12:55-56 D '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sakharnoy svekly.

(Sugar beets)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.A., starshiy nauchnyy sotrudnik; MUSIYENKO, Yu.V. [Musiienko, IU.V.], aspirant

Machinery used in sugar beet seed production. Mekh. sil'. hosp. 12 no. 5:5-7 My '61. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sakharnoy svekly.
(Sugar beets) (Agricultural machinery)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.A.; TIMKO, V.V.; GOLOVIN, B.V.

Universal truck loader. Trakt.i sel'khozmash. 31 no.8:41-42 Ag '61. (MIRA 14:7)

(Motortrucks)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.A., inzh.

VPS-4 transplanter. Trakt. i sel'khozmash. 31 no.10:38-39 O '61.
(MIRA 14:12)
(Planters(Agricultural machinery))

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.A., kand. tekhn. nauk; VOL'FMAN, I.D., inzh.

Self-adjusting reducing gear. Mashinostroenie no.5:52-53 S-O '65. (MIRA 18:9)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

38267
S/135/62/000/006/014/014
A006/A106

12300

AUTHORS: Samoylov, M. I., Zamyatin, I. P., Engineers

TITLE: A device for spot-welding box-shaped structures.

PERIODICAL: Svarochnoye proizvodstvo, no. 6, 1962, 38 - 39

TEXT: The authors developed and brought into use a special device for welding box-shaped structures, at two spots simultaneously (Fig. 3). The device is mounted with the aid of collar 1 and lever 2 onto the lower fixed cantilever of a spot welding machine. The electrodes 3 of the device are coaxial with the machine electrodes. When handle 4 is rotated, rod 5 pulls or pushes wedge 6; as a result the distance B increases or decreases. By loosening bolts 7, the device can be turned or displaced so that the access through the operating holes into the box is possible. Industrial tests of the device showed its advantage over mandrels. Box-shaped structures of a wide range of dimensions can be welded with the aid of this instrument. The use of mandrels is eliminated, labor efficiency is raised and stable welding conditions are ensured. The quality of the weld joint is satisfactory.

Card 1/2

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A device for spot-welding box-shaped structures

S/135/62/000/006/014/014
A006/A106

Figure 3: A device for spot-welding box-shaped structures

There are 3 figures.

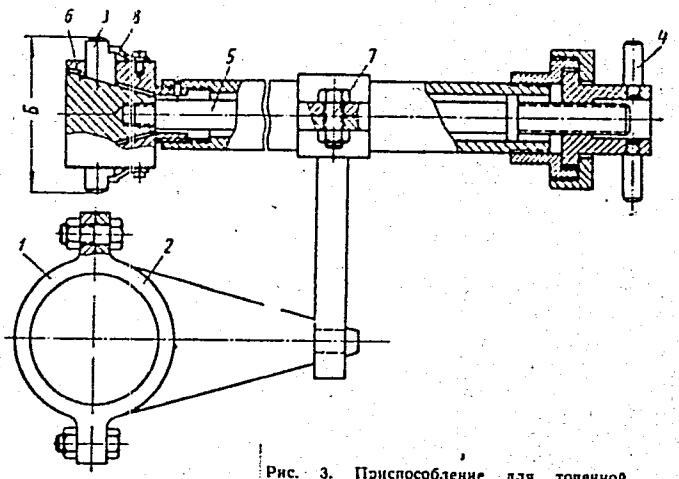

Рис. 3. Приспособление для точечной сварки коробчатой конструкции.

Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

L 2444-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) MJW/JD

ACCESSION NR: AP5020158 UR/0135/65/000/008/0012/0013
66.046:621.791.053:669.15-194

AUTHORS: Zamyatin, I. P. (Engineer); Samoylov, M. I. (Engineer)

TITLE: Thermal treatment of welded 25KhSNVFA steel connections with high frequency currents

SOURCE: Svarochnoye proizvodstvo, no. 8, 1965, 12-13

TOPIC TAGS: butt weld, welded joint, steel sheet welding, weld heat treatment, high frequency induction heating/ 25KhSNVFA steel, VGO 100 2 generator

ABSTRACT: Tempering and normalization of 25KhSNVFA steel sheet butt welds in a furnace and by high frequency induction heating (HFIH) were compared. Steel plates (200 x 100 x 3 mm, σ = 70-80 kg/mm^2) were argon-arc welded with a tungsten electrode using 1.6 mm diameter 18KhMA steel welding wire (three passes--only the second performed with welding wire). After 30 minutes the welds were subjected to high temperature tempering, normalization or normalization with subsequent tempering in normal heat treating furnaces or by HFIH using generator VGO-100-2 (tempering: 720-740C maximum temperature, 13-15 Kw generator, 60-65 mm/min, 100 amp generator current, 230 V; normalization: 930-950C, 25, 25-30, 100, and 260 V respectively). Hardness and microstructure profiles were taken and tensile properties of the welds

Card 1/2

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L 21444-66

ACCESSION NR: AP5020158

2

were tested. It was found that neither furnace nor HFIH tempering completely eliminated the weld brittleness (HRC63-64 even after repeated tempering), and the difference between the two methods was so small that HFIH can be used in place of conventional tempering (at 720C). When normalization has to be performed, HFIH can be used if the temperature is increased from 900C to 930-950C. Pressure vessel tests showed that normalization at 950C with subsequent tempering with HFIH gave best results. Orig. art. has: 5 figures.

ASSOCIATION: Permskiy politekhnicheskiy institut (Perm Polytechnic Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 000 OTHER: 000

BVK

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

BROUDE, L.M.; PEKHTEREVA, S.I.; Prinimali uchastiye: SAMOYLOV, M.I.; GOLUBOVICH, K.

Effect of cortisone and testosterone on the content of asparagine, carnosine and anserine in skeletal and heart muscles. Biokhimiia 27 no.1:42-47 Ja-F 62. (MIRA 15:5)

1. Department of Biological Chemistry, 1st Medical Institute, Moscow.
(STEROID HORMONES) (MUSCLES)
(HEART--MUSCLE) (ASPARAGINE) (PEPTIDES)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.I.

Effect of extirpation of the cortical end of the motor analyzor on conditioned motor defense reflexes. Trudy Inst. vys. nerv. deiat. Ser. fiziol. 6:58-67 '61. (MIRA 14:12)

1. Iz Laboratorii dvigatel'nykh uslovnykh refleksov, zav. - G.V.Skipin.

(CONDITIONED RESPONSE)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.I.

Disturbance in the functional activity of the brain in case of hemorrhage. Biol. v shkole no.2:95 Mr-Ap '62. (MIRA 15:2)

1. Institut vysshey nervnoy deyatel'nosti AN SSSR.
(BRAIN--HEMORRHAGE)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.I.

Role of the cortical tips of the motor and skin analyzers in the accomplishment of a complex, conditioned motor defense reflex. Trudy Inst.vys.nerv.deiat. Ser.fiziol. 7:120-127 '62. (MIRA 16:2)

(CONDITIONED RESPONSE)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M. P.

Rate of Cooling of Iron Castings and Core Heating. M. P. Samoilov. (*Liteinoe Proizvodstvo*, 1955, (1), 22). [In Russian]. Temperature surveys on metal and core during the cooling of iron castings of various weights are reported, and the significance of the results in the consideration of gas pockets is discussed.—S. K.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

VOLKOV, Mikhail Ivanovich, prof.; GEL'MER, Vladimir Oskarovich, kand. tekhn.nauk; ZASHCHEPIN, Aleksey Nikitich, kand.tekhn.nauk; LYSIKHINA, Aleksandra Ivanovna, kand.tekhn.nauk; MIKHAYLOV, Valentin Vasil'yevich, kand.tekhn.nauk; PANTELEYEV, Fedor Nikolayevich, kand.tekhn.nauk; SAMOYLOV, Mikhail Pavlovich, inzh.; ORNATSKIY, N.V., prof., doktor tekhn.nauk, glavnyy red.; MOROZOV, V.I., red.; MAL'KOVA, N.V., tekhn.red.

[Handbook for road engineers; road materials] Spravochnik inzhenera-dorozhnika; dorozhno-stroitel'nye materialy. Moskva, Nauchno-tekhn.izd-vo M-va avtomobil'nogo transp. i shosseinykh dorog RSFSR, 1959. 308 p. (MIRA 12:8)
(Road materials)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

VASILENKO, Aleksey Nikolayevich, kand. tekhn. nauk; DRYZHAKOV, Yevgeniy Vasil'yevich, dots.; ISAYEV, Sergey Ivanovich, kand. tekhn. nauk; KORNEYCHUK, Nikolay Karpovich, kand. tekhn. nauk, dots.; KOFANOV, Vyacheslav Ivanovich; assistent; KRUTOV, Vitaliy Ivanovich, doktor tekhn. nauk, prof.; MIRONOV, Boris Mikhaylovich, kand. tekhn. nauk; NIGMATULIN, Iskander Nigmatulevich, doktor tekhn. nauk, prof.; NOSOV, Mikhail Vasil'yevich, prof.; SAMOYLOV, Mikhail Sergeyevich, assistent; SPORYSH, Igor' Pavlovich, kand. tekhn. nauk, prof.; KHVOSTOV, Viktor Ivanovich, kand. tekhn. nauk; SHISHOV, Yevgeniy Viktorovich, kand. tekhn. nauk; YUDAYEV, Boris Nikolayevich, kand. tekhn. nauk, dots.; KUTYRIN, I.N., dots., kand. tekhn. nauk, retsenzent; SHVEDOV, A.M., dots., retsenzent; TUPITSYNA, L.A., red.; FUFAYEVA, G.I., red.

[Problems in technical thermodynamics and heat transfer] Sbornik zadach po tekhnicheskoi termodinamike i teploperedache. [By] A.N.Vasilenko i dr. Moskva, Vysshaia shkola, 1964. 369 p. (MIRA 17:4)

1. Prepodavatel'skiy kollektiv kafedry termodinamiki i teploperedachi Moskovskogo vysshego tekhnicheskogo uchilishcha (for all except Kutyrin, Shvedov, Tupitsyna, Fufayeva). 2. Moskovskiy aviatsionnyy institut (for Kutyrin, Shvedov).

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, M.S., starshiy prepodavatel'

Hydrodynamics and heat exchange at the propagation of a twisted non-compressible fluid jet in a flooded area. Izv.vys.ucheb.zav.;mashinostr. no.5:100-106 '64. (MIRA 18:1)

1. Moskovskoye vyesshoye tekhnicheskoye uchilishche imeni N.E.Baumana.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

ACC NR: AP7006675 (A) SOURCE CODE: UR/0145/66/000/010/0062/0070

AUTHOR: Samoylov, M. S. (Senior instructor)

ORG: None

TITLE: On calculating a laminar twisted jet of compressible fluid

SOURCE: IVUZ. Mashinostroyeniye, no. 10, 1966, 62-70

TOPIC TAGS: jet flow, laminar flow, flow analysis, compressible fluid

ABSTRACT: A computational method is proposed for studying mixing of a laminar twisted jet of compressible fluid with a homogeneous motionless medium. The analysis is based on application of the method of deformation of independent variables to equations for free flows. The article was presented for publication by Doctor of technical sciences V. I. Krutov, Professor at the Moscow Technical College.

SUB CODE: 20/ SUBM DATE: 23May66/ ORIG REF: 003

UDC: 621.001

Card 1/1

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

ACCESSION NR: AP4043311 S/0145/64/000/006/0127/0133

AUTHOR: Samoylov, M. S.

TITLE: Free deflected flow of a compressible fluid in a stationary environment

SOURCE: IVUZ. Mashinostroyeniye, no. 6, 1964, 127-133

TOPIC TAGS: free flow, compressible flow, laminar flow, deflected laminar flow, stationary flow environment, flow analysis, longitudinal velocity component, radial velocity component, excess stagnation temperature, independent variable transformation, hydrodynamics

ABSTRACT: A primary sector of a laminar deflected flow is analyzed by applying the known transformation of independent variables to differential equations of motion and energy in free flows. An approximated solution is obtained for motion and heat exchange equations of such a flow in a flooded space filled with the same liquid. It is given in the form of a function allowing one to determine longitudinal and radial components of stream travel velocity and the excess fluid stagnation temperature in a deformed system of coordinates. Another relationship is given for conversion from E, η coordinates to the normal x, r system. Orig. art. has: 21 equations.

Card 1/2

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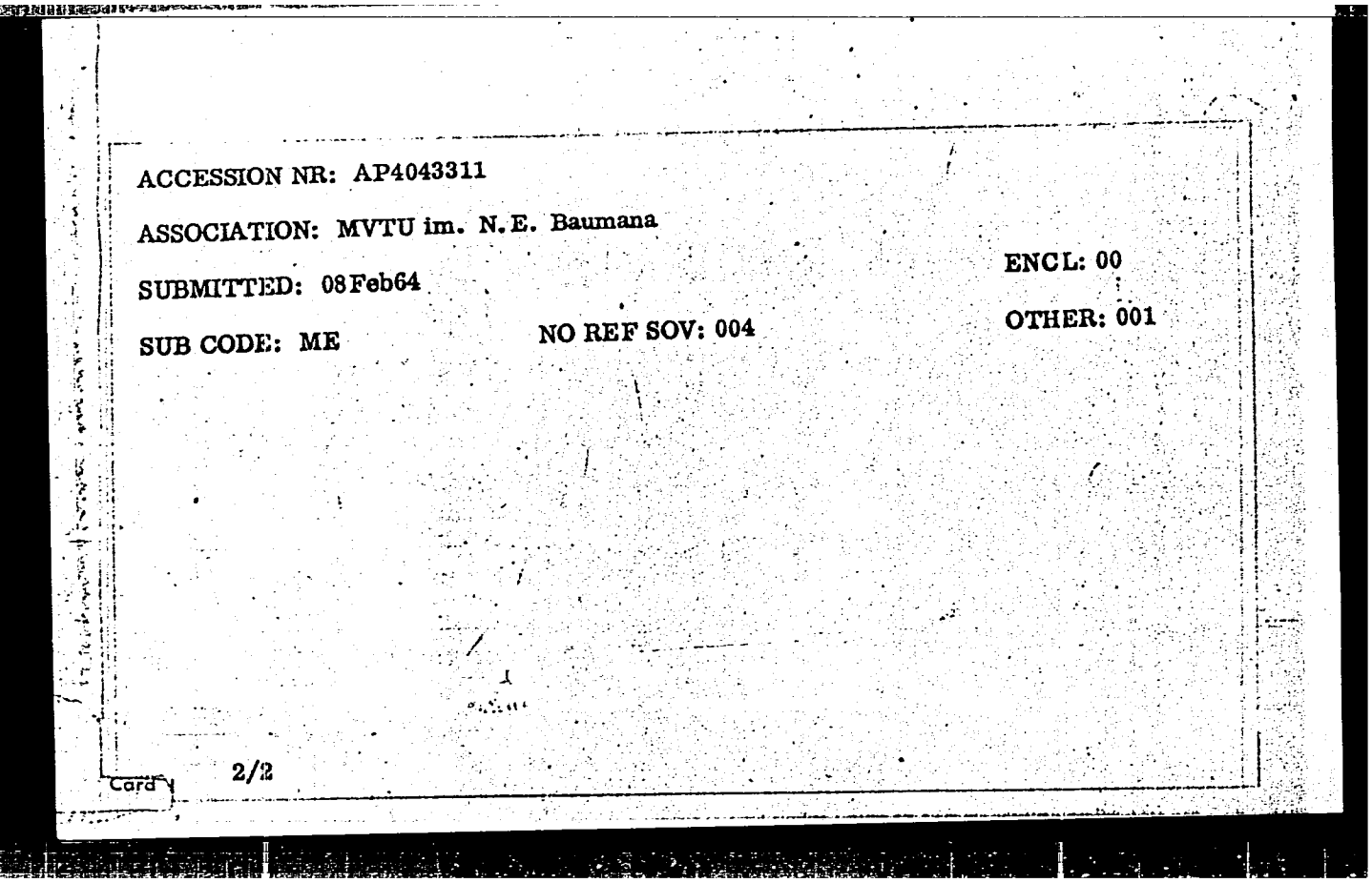

ACCESSION NR: AP4043311

ASSOCIATION: MVTU im. N.E. Baumana

SUBMITTED: 08Feb64 ENCL: 00

SUB CODE: ME NO REF SOV: 004 OTHER: 001

Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

L 43180-65 EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(1) Pd-1

ACCESSION NR: AP5009770 UR/0170/65/008/003/0325/0329

24
23
B

AUTHOR: Samoylov, M. S.

TITLE: On the theory of turbulent vortex jets in incompressible liquids

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 3, 1965, 325-329

TOPIC TAGS: turbulent flow, incompressible flow, viscous flow, turbulent jet, viscosity coefficient, vortex

ABSTRACT: The viscous flow of a heat-conducting, turbulent, rotating jet was analyzed theoretically. The momentum and energy equations are presented for the axial and tangential velocity components u and w in cylindrical coordinates, and a closed form solution is obtained for both velocity components under the assumption that the turbulent viscosity coefficient is constant. It is then assumed that the viscous shear stresses can be represented more generally by $\tau_{xr} = \rho l_T^2 \left|\frac{\partial u}{\partial r}\right| \frac{\partial u}{\partial r}$;

$$\tau_{x\theta} = \rho l_T^2 \left|\frac{\partial u}{\partial r}\right| \left(\frac{\partial w}{\partial r} - \frac{w}{r}\right),$$

and the expressions for u and w = M/r become $u/u_m = (1-\varphi^{\frac{3}{2}})^{\frac{1}{3}}$ and $M = \frac{c_3}{x}(1-\varphi^{\frac{3}{2}})^{\frac{1}{3}}\varphi^{\frac{1}{2}}$.

Card 1/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

L 43180-65

ACCESSION NR: AP5009770

Similar results are derived for the pressure distribution in the vortex-jet, and the two solutions, the particular and the general, are compared graphically. Orig. art. has: 14 formulas and 2 figures.

ASSOCIATION: Vysshaye mekhanicheskoye uchilishche im. N. E. Baumana g. Moskva (Higher Mechanical College)

SUBMITTED: 27Feb64 ENCL: 00 SUB CODE: ME, TD

NO REF SOV: 002 OTHER: 001

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APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, N.

Work practice in silo construction in Orel Province. Sel'.stroi.11 no.7:2 Jl '56. (MLRA 9:9)

1.Glavnyy inzhener Orlovskogo oblastnogo upravleniya po stroitel'stvu v kolkhozakh.
(Orel Province--Silos)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

L 47387-65

ACCESSION NR: AP5006821 S/0065/65/000/002/0019/0020

AUTHOR: Fiminykh, L. F.; Smirnov, N. P.; Samoylov, N. A.; Dolmatov, I. V.

TITLE: Use of synthetic zeolites for drying hydrocarbons

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 2, 1965, 19-20

TOPIC TAGS: zeolite, hydrocarbon, desiccant

ABSTRACT: Petroleum fractions and individual hydrocarbons, especially aromatic ones, are hygroscopic; therefore during the winter their water content is the reason for the precipitation of ice crystals and hydrates and consequently for the clogging of fuel systems. In view of this the authors performed the drying of toluene with synthetic zeolites of the NaA type with an average granule size of 3 mm. The adsorbent was first dried for 6 hours at a temperature of 350°C. Deep drying of toluene by synthetic zeolites of the NaA type is achieved as a result of the high dynamic activity of the adsorbent. The activity of the adsorbent is effectively restored by desorption at a temperature of 350°C and a pressure of 400 mm Hg for 3 hours. Orig. art. has: 3 figures, 1 table.

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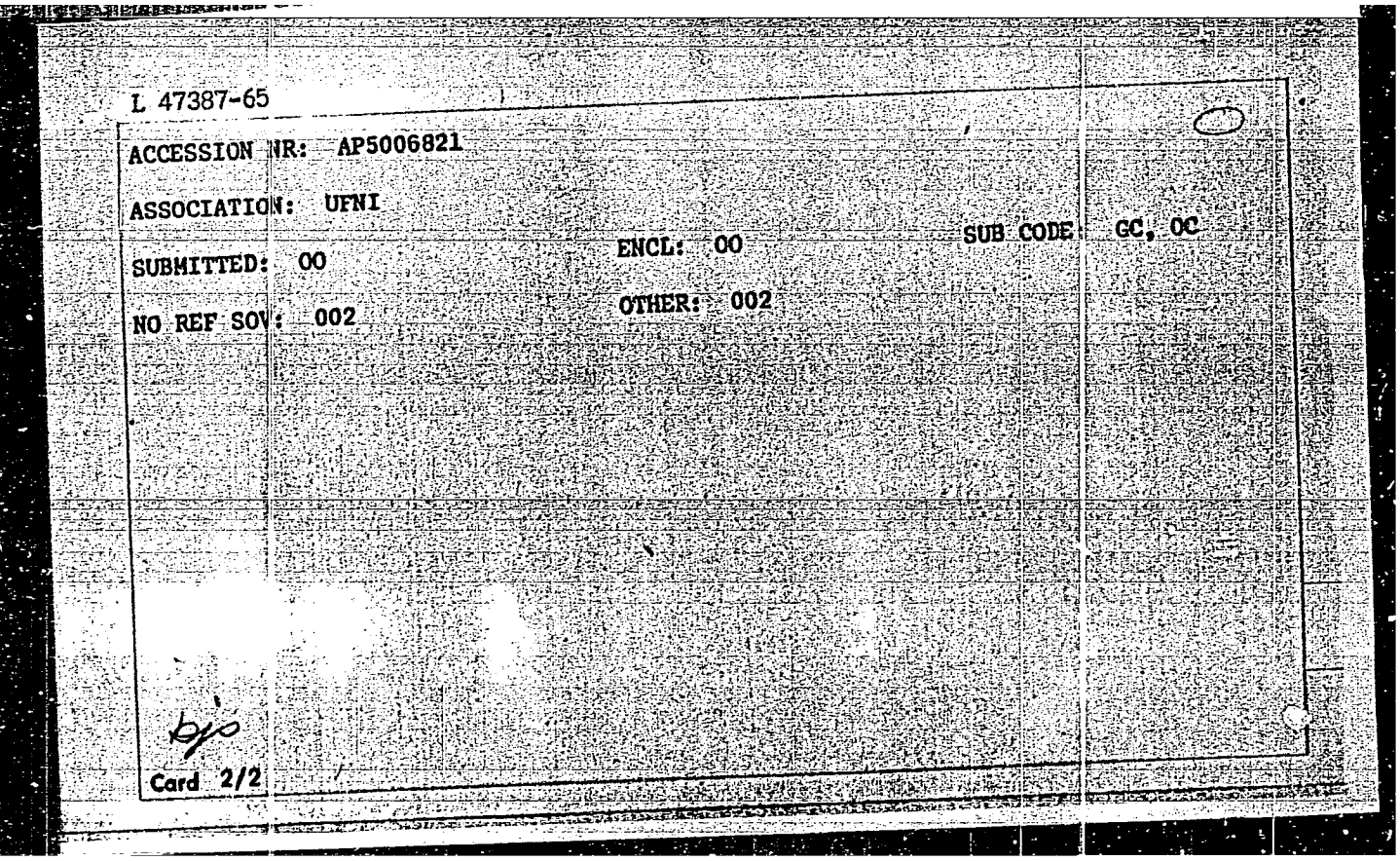

L 47387-65

ACCESSION NR: AP5006821

ASSOCIATION: UFNI

SUBMITTED: 00 ENCL: 00 SUB CODE: GC, OC

NO REF SOV: 002 OTHER: 002

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APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

BUCHNEV, K.N., prof.; LOPATNIKOV, G.I., kand.veterin.nauk; OMAROV, K.S., kand. veterin.nauk; GLEBOVA, V.N., kand.veterin.nauk; UVALIYEV, I.U., kand. veterin.nauk; SAMOYLOV, N.G., assistent

Infectious pustular dermatitis in sheep. Veterinariia 40 no.9:27-28 S '63. (MIRA 17:1)

1. Alma-Atinskiy zooveterinarnyy institut.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

BUCHNEV, K.N., prof.; UVALIYEV, I., starshiy prepodavatel'; OMAROV, K.S., dotsent; GLEBOVA, V.N., dotsent; LOPATNIKOV, G.I., assistent; SAMOYLOV, N.G., assistent

Besnoitiosis of cattle in the Lake Balkhash region. Veterinariia 41 no.5:59-63 My '64. (MIRA 18:3)

1. Alma-Atinskiy zooveterinarnyy institut.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, N.N. (Leningrad)

Method for studying the effect of drugs on wound healing. Pat. fiziol. i eskp. terap. 4 no. 6:78 N-D '60. (MIRA 14:2)

1. Iz kafedry farmakologii (zav. - zasluzhennyy deyatel' nauki prof. N.V. Lazarev) Voyenno-meditsinskoy Lenina akademii imeni S.M. Kirova.

(WOUNDS)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, N.N.

Influence of metatsil and ACTH on the restorative regeneration of of the corneal epithelium in rabbits. Farm. i toks. 24 no.4:481-485 Jl-Ag '61. (MIRA 14:9)

1. Kafedra farmakologii, farmatsii i farmakogiozil (zav. zasluzhennyy deyatel' nauk prof. N.V.Lazarev) Voyenno-meditsinskoy ordena Lenina Akademii imeni S.M.Kirova.
(URACIL) (ACTH) (CORNEA)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, N.N. (Leningrad)

Factors of external environment and processes of restorative regeneration in the rabbit cornea. Pat. fiziol. i eksp. terap. 6 no.6: 73-74 N-D'62 (MIRA 17:3)

1. Iz laboratorii eksperimental'noy onkologii (zav. - zasluzhennyy deyatel' nauki prof. N.V.Lazarev) Instituta onkologii (dir. - deystvitel'nyy chlen AMN SSSR prof. A.I. Serebrov) AMN SSSR.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

KALPIN, G.Z.; RUBLEVA, K.I.; SAMOYLOV, N.P.; REBROVA, G.I.; ROMANCHUK, Z.A.; KALASHNIKOVA, V.S., red.; TIKHONOVA, Ye.M., red.; BALLOD, A.I., tekhn. red.; PROKOF'YEVA, L.N., tekhn. red.

[Manual on state farm wates and other state agricultural enterprises] Spravochnik po oplate truda v sovkhozakh i drugikh gosudarstvennykh sel'skokhoziaistvennykh predpriiatiiakh. Moskva, Izd-vo sel'khoz. lit-ry, zhurnalov i plakatov, 1962. 550 p. (MIRA 15:3)

1. Ministerstvo sel'skogo khozyaystva SSSR (for Kalpin, Rubleva, Samoylov, Rebrova, Romanchuk).
(Agricultural wages--Handbooks, manuals, etc.)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

BUZILOV, Yu.T., kand. ekon. nauk; Prinimali uchastiye: YERMAKOVA, L.A.; RESHETNIKOV, V.A.; RESHETNIKOVA, L.V.; RUBLEVA, K.I.; SAMOYLOV, N.P.; SERGEYEVA, V.S., red.; TIKHONOVA, Ye.M., red.

[Manual for establishing work norms and wages in livestock farming] Spravochnik po normirovaniiu i oplate truda v zhivotnovodstve. Moskva, Kolos, 1964. 326 p. (MIRA 18:8)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

KALPIN, G.Z.; RUBLEVA, K.I.; SAMOYLOV, N.P.; REBROVA, G.I.; SAGARDA, Ye.A.; SERGEYEVA, V.S., red.; TIKHONOVA, Ye.M., red.; MAKHOVA, N.N., tekhn. red.; OKOLELOVA, Z.P., tekhn. red.

[Manual on wages on state farms and other state agricultural enterprises] Spravochnik po oplate truda v sovkhozakh i drugikh gosudarstvennykh sel'skokhozyaystvennykh predpriiatiiakh. Izd.2., perer. i dop. Moskva, Sel'khozizdat, 1963. 638 p. (MIRA 16:12)
(Agricultural wages--Handbooks, manuals, etc.)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

ACC NR: AP6017995 SOURCE CODE: UR/0413/66/000/010/0101/0101

INVENTOR: Samoylov, N. S.; Ronzhin, O. V.; Bogoslovskikh, D. I.

ORG: None

TITLE: Hydromechanical throttling device with programmed control. Class 42, No. 181891

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 101

TOPIC TAGS: flow control, gas flow, valve

ABSTRACT: This Author's Certificate introduces a hydromechanical throttling device with programmed control. The unit contains a needle for regulating the rate of gas flow, an indicator for checking the actual gas parameter, and a choke with a regulator connected to an electromechanical transducer which operates on a signal from a program unit which compares the actual gas parameter with the programmed parameter. The installation is designed to maintain a given programmed gas parameter at the output by controlling the rate of motion of the needle valve. A piston is rigidly connected to the needle valve with pressure fed to the rod cavity from the ouput of the installation. The piston cavity is filled with fluid and connected through the choke to the regulator with simultaneous connection through a bypass tube to a check valve and a tank.

Card 1/2 UDC: 621.646-503.55-543.2

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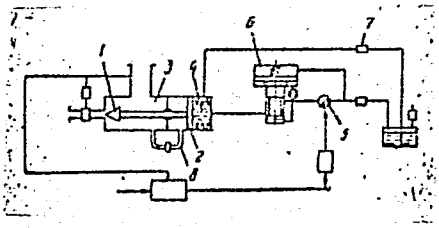
"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

ACC NR: AP6017995



1—needle valve; 2—piston; 3—rod cavity; 4—piston cavity; 5—choke; 6—regulator; 7—check valve; 8—bypass tube

SUB CODE: 13/ SUBM DATE: 17Dec64

Card 2/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

S/853/62/000/000/005/008
A006/A101

AUTHORS: Stroyev, S. S., Samoylov, N. S.

TITLE: Investigating the scale resistance of some heat-resistant alloys

SOURCE: Termostoykost' zharoprochnykh splavov, sbornik statey, Ed. by N. M. Sklyarov Moscow, Oborongiz, 1962, 104 - 123

TEXT: The scale resistance of the following materials was tested: Ni-base type ЖС 3 (ZhS3) and "Nimokast" cast alloys; Ni-base alloys ЭИ437Б (EI437B) ЭИ 617 (EI617), EI617 and "Nimonik" type alloys, ЭИ 787 (EI787) steel, 1Х18Н9Т (1Kh18N9T) steel and Х20Н80Т (Kh20N80T) alloy. A machine was used performing 3 types of cycle: a) symmetrical heating and cooling and alternating tensile and compressive deformation; b) accumulation of compressive deformation, and c) accumulation of tensile deformation. The operational section of the specimens investigated was 3 mm in diameter. The maximum cycle temperatures were 800 - 1,200°C. The scale resistance of all the materials investigated decreased with higher maximum temperatures of the thermal cycle. The scale resistance as a function of the maximum cycle temperature is expressed by a hyperbolic curve

Card 1/3

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Investigating the scale resistance of some...

for Kh20N80T alloys, 1 Kh18N9T steels, and EI437B alloys, and by a straight line for ZhS3 type, Nimocast, EI473B, type EI617, type Nimonik alloys and EI787 steel subjected to dispersion strengthening. When the maximum temperature changes, best scale-resistance properties are shown by nickel-base cast alloys at the lower level, and by EI437B and EI617 alloys at the upper level of maximum temperatures. Fractures and cracking occur perpendicularly to the longitudinal specimen axis and are accompanied by changes in the surface and the operational section shape. At lower elastic-plastic deformations the scale resistance of the materials increases considerably, but the course of its changes remains the same with varying maximum temperature. Larger diameters of the operational sections raise the scale resistance of all the materials within the whole maximum temperature range. Thermal fatigue failure is accompanied by considerable stresses, attaining and exceeding the yield and proportionality limits. The dependence of maximum thermal stresses on the number of heat alternations is of a complex nature. The dependence of tensile stresses upon the number of thermal cycles reproduces qualitatively tension diagrams obtained during short-time rupture. A reduction in the diameter of the operational section of specimens increases the maximum thermal stresses. The thermal fatigue failure of some materials occurs

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Investigating the scale resistance of some...

during tensile stresses which are lower than the proportionality limit of the material in its initial state. This can be explained by reduced elastic characteristics of the material or of the individual components of its structure, after multiple thermocyclic effects. Highest scale-resistance is offered by materials that were subjected to preliminary standard heat-treatment. There are 3 tables and 6 figures.

Card 3/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, N. V., Eng.

Steam Turbines

Controlling cooling water discharge in turbines with an imperfect vacuum, Elek. sta., 23, no. 5, 1952.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, October 1952. Uncl.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

L 01811-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6035636 SOURCE CODE: UR/0089/66/020/005/0438/0439

AUTHOR: Garbunov, L. M.; Mitenkov, F. M.; Samoylov, O. B.; Farmakovskiy, V. V.

ORG: none

TITLE: Cross-section averaging in thermal region for media containing zirconium hydride

SOURCE: Atomnaya energiya, v. 20, no. 5, 1966, 438-439

TOPIC TAGS: zirconium compound, hydride

ABSTRACT: The average values in the thermal region were calculated as a function of temperature and of absorption per single H nucleus, using the results obtained by averaging the spectra for infinite homogeous media poisoned by the absorber. It was found that the averaged absorption cross sections follow a v^{-1} law and do not exceed 20 barns in the interval from 293 to 773°K. Orig. art. has: 4 figures. [NA]

SUB CODE: 07 / SUBM DATE: 14 Aug 65 / ORIG REF: 003

Card 1/1 UDC: 539.125.52:539.17.02

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

ACC NR: AP7000803 (A,N) SOURCE CODE: UR/0089/66/021/005/0408/0410

AUTHOR: Mitenkov, F. M.; Averbakh, B. A.; Gorbunov, L. M.; Samoylov, O. B.

ORG: none

TITLE: Contribution to the calculation of the Doppler temperature coefficient of reactivity of homogeneous reactors

SOURCE: Atomnaya energiya, v. 21, no. 5, 1966, 408-410

TOPIC TAGS: nuclear reactor characteristic, homogeneous nuclear reactor, temperature coefficient, nuclear resonance, approximate solution, computer calculation

ABSTRACT: The authors present a procedure for calculating the derivative of the resonance escape probability with respect to the temperature, or the derivative of the effective resonance integral with respect to temperature, for the case of a homogeneous reactor. The calculation is similar to that given by G. I. Marchuk (Chislennyye metody rascheta yadernykh reaktorov [Numerical Methods in the Design of Nuclear Reactors], M., Atomizdat, 1961) for a heterogeneous medium. A set of plots of the derivative of the self-screening factor with respect to temperature, which is evolved in these calculations, is included in the article. This set was obtained by solving the appropriate differential equation with an Ural-2 electronic computer. Orig. art. has: 10 formulas and 1 figure.

SUB CODE: 18/ SUBM DATE: 21Dec65/ ORIG REF: 005/ OTH REF: 001

Card 1/1 UDC: 261.039.512.26

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. I.

ORLOV, I.G.; SAMOYLOV, O.I.

Experience in the reinforcement of mine shafts. Gor.zhur. no.9:71 S '57. (MLRA 10:9)

1. Glavnyy inzhener Altyn-Topkanskogo shakhtostroitel'nogo upravleniya (for Orlov). 2. Zamestitel' nachal'nika proizvodstvennogo otdela Altyn-Topkanskogo shakhtostroitel'nogo upravleniya (for Samoylov).
(Shaft sinking)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.K., inzh.

Use of the NDK paint. Sudostroenie 28 no.8:45 Ag '62.
(MIRA 15:8)
(Ships--Painting)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

PODBORSKIY,L.Ye., inzhener; SAMOYLOV,O.P., inzhener.

The S-284 concrete pump. Mekh.stroi. 12 no.5:7-10 My '55.
(Pumping machinery) (MLRA 8:6)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

PODBORSKIY, L.Ye.; SAMOYLOV, O.P., inzhener; SEMENOV, G.M., inzhener.

Set of devices for transporting concrete mortar with the use of concrete pumps. Gidr.stroi. 25 no.3:22-25 Ap '56. (MLRA 9:9)
(Concrete construction) (Pumping machinery)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.P.

POLBORSKIY, L.Ye., inzhener; SAMOYLOV, O.P., inzhener.

Increasing the performance of S-230A concrete mixers. Stroi. i dor. mashinostr. 2 no.5:12-15 My '57. (MLRA 10:6)
(Mixing machinery)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

Samoylov, O.P.

PODBORSKIY, L.Ye., inzh.; SAMOYLOV, O.P., inzh.

Pneumatic-tube transportation of concrete mixes. Stroi. i dor. mashinostr. 3 no.2:5-8 F '58. (MIRA 11:2)
(Pneumatic-tube transportation)
(Concrete--Transportation)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

PODBORSKIY, L.Ye., inzh.; SAMOYLOV, O.P., inzh.

Increasing the precision of water dosage in concrete mixers with 100, 250, and 425 l. capacity. Stroi. i dor.mashinostr. 4 no.6:14-15 Je '59. (MIRA 12:8)
(Concrete mixers)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

PODBORSKIY, L.Ye., inzh.; SAMOYLOV, O.P., inzh.

Investigating the performance of an automatic concrete placer. Stroi.i dor.mashinostr. 4 no.8:27-29 Ag '59. (MIRA 12:12)

(Pavements, Concrete) (Road machinery)

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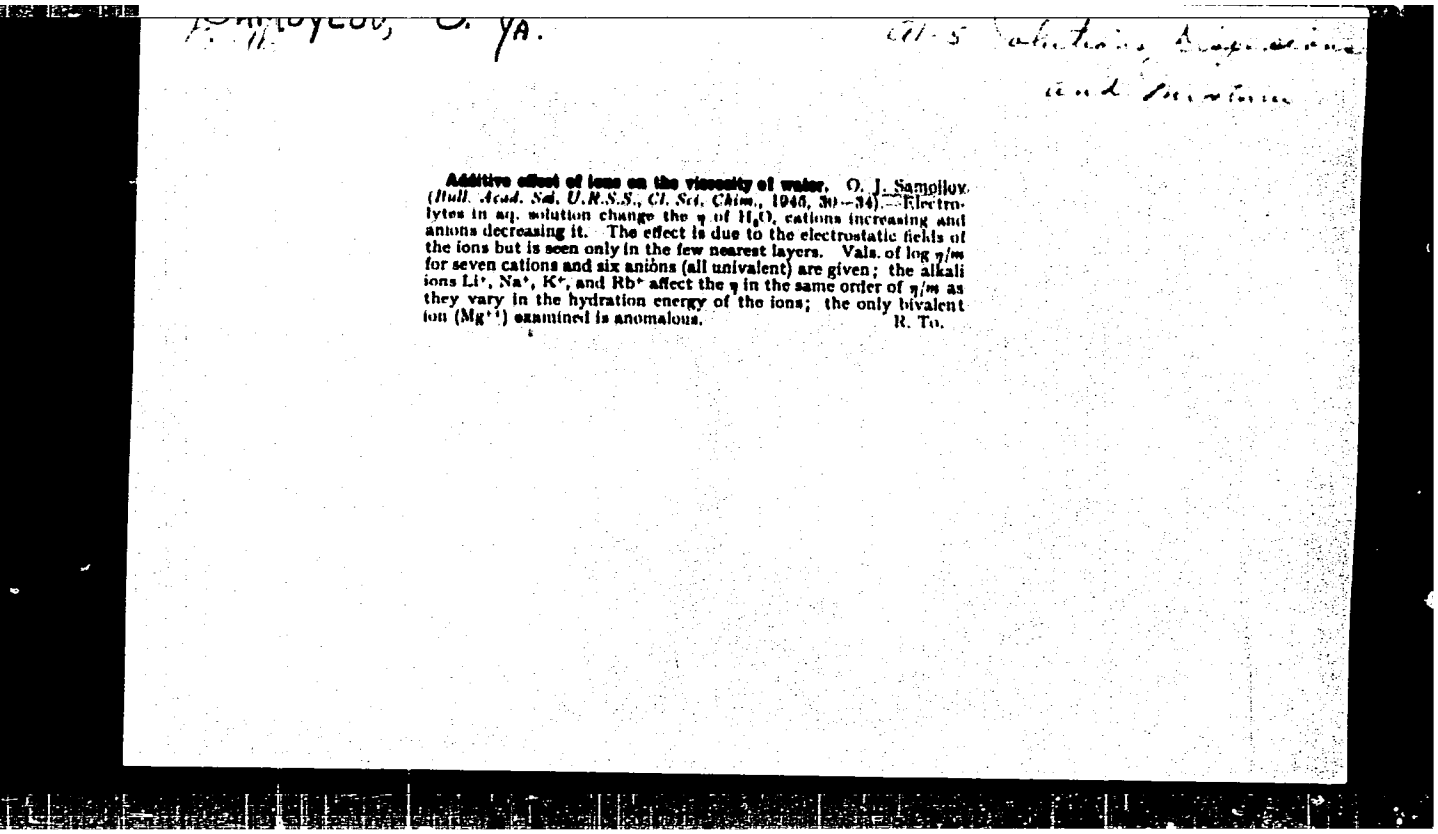

Additive effect of ions on the viscosity of water. O. J. Samoilov. (*Bull. Acad. Sci. U.R.S.S., Cl. Sci. Chim.*, 1946, 30–34).—Electrolytes in aq. solution change the η of H_2O, cations increasing and anions decreasing it. The effect is due to the electrostatic fields of the ions but is seen only in the few nearest layers. Vals. of log η/m for seven cations and six anions (all univalent) are given; the alkali ions Li^+, Na^+, K^+, and Rb^+ affect the η in the same order of η/m as they vary in the hydration energy of the ions; the only bivalent ion (Mg^{++}) examined is anomalous. R. Ts.

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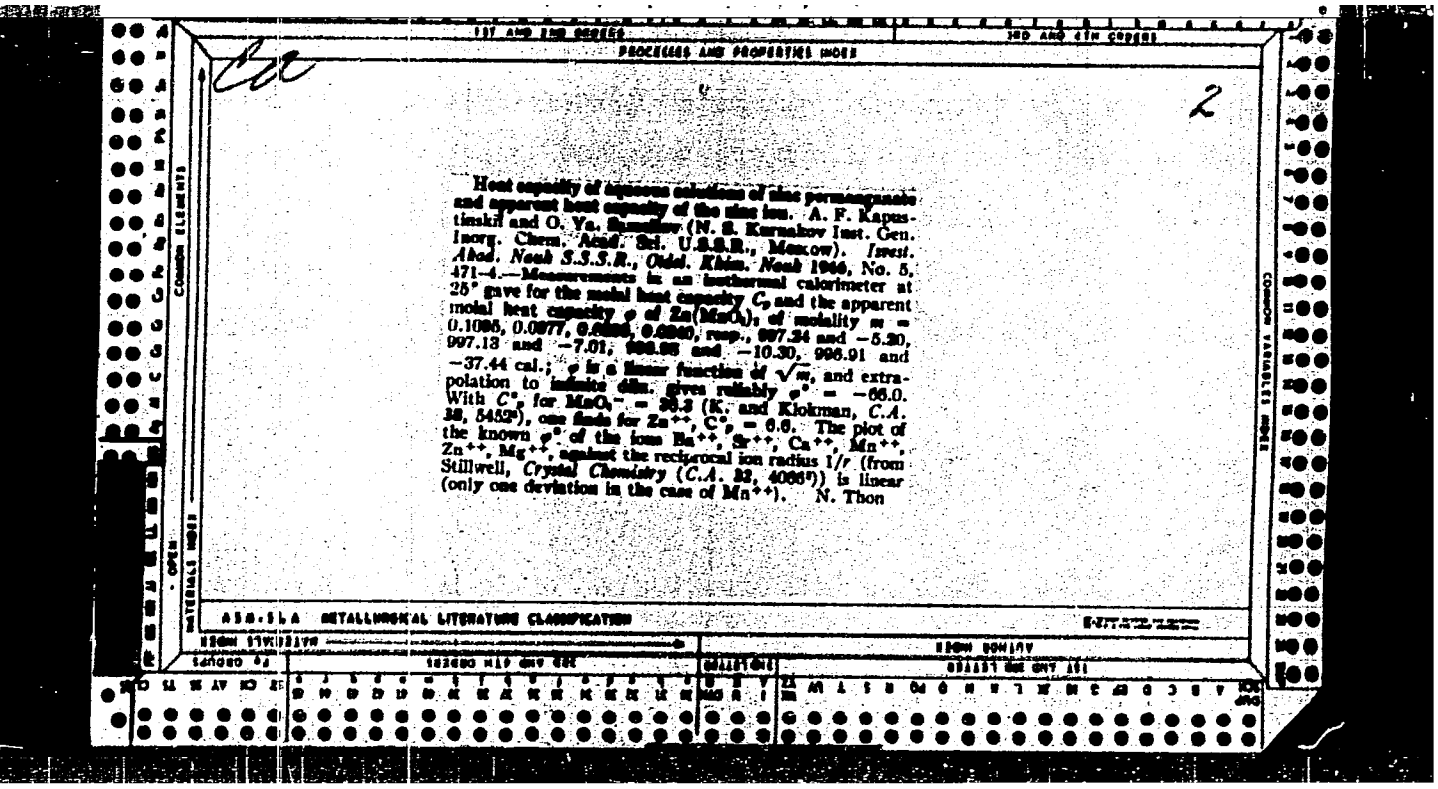

Heat capacity of aqueous solutions of zinc permanganate and apparent heat capacity of the zinc ion. A. F. Kapustinskii and O. Ya. Samoilov (N. S. Kurnakov Inst. Gen. Inorg. Chem. Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, No. 5, 471–4.—Measurements in an isothermal calorimeter at 25° gave for the molal heat capacity C_p and the apparent molal heat capacity φ of $Zn(MnO_4)_2$, of molality m = 0.1086, 0.0877, 0.0502, 0.0260, resp., 997.24 and −5.20, 997.13 and −7.01, 996.98 and −10.30, 996.91 and −37.44 cal.; φ is a linear function of $\sqrt{m}$, and extrapolation to infinite dil. gives reliably φ° = −66.0. With C°_p for MnO_4^- = 36.3 (K. and Kiokman, *C.A.* 38, 5452[8]), one finds for Zn^{++}, C°_p = 0.6. The plot of the known φ° of the ions Ba^{++}, Sr^{++}, Ca^{++}, Mn^{++}, Zn^{++}, Mg^{++}, against the reciprocal ion radius $1/r$ (from Stillwell, *Crystal Chemistry* (*C.A.* 32, 4066[7])) is linear (only one deviation in the case of Mn^{++}). N. Thon

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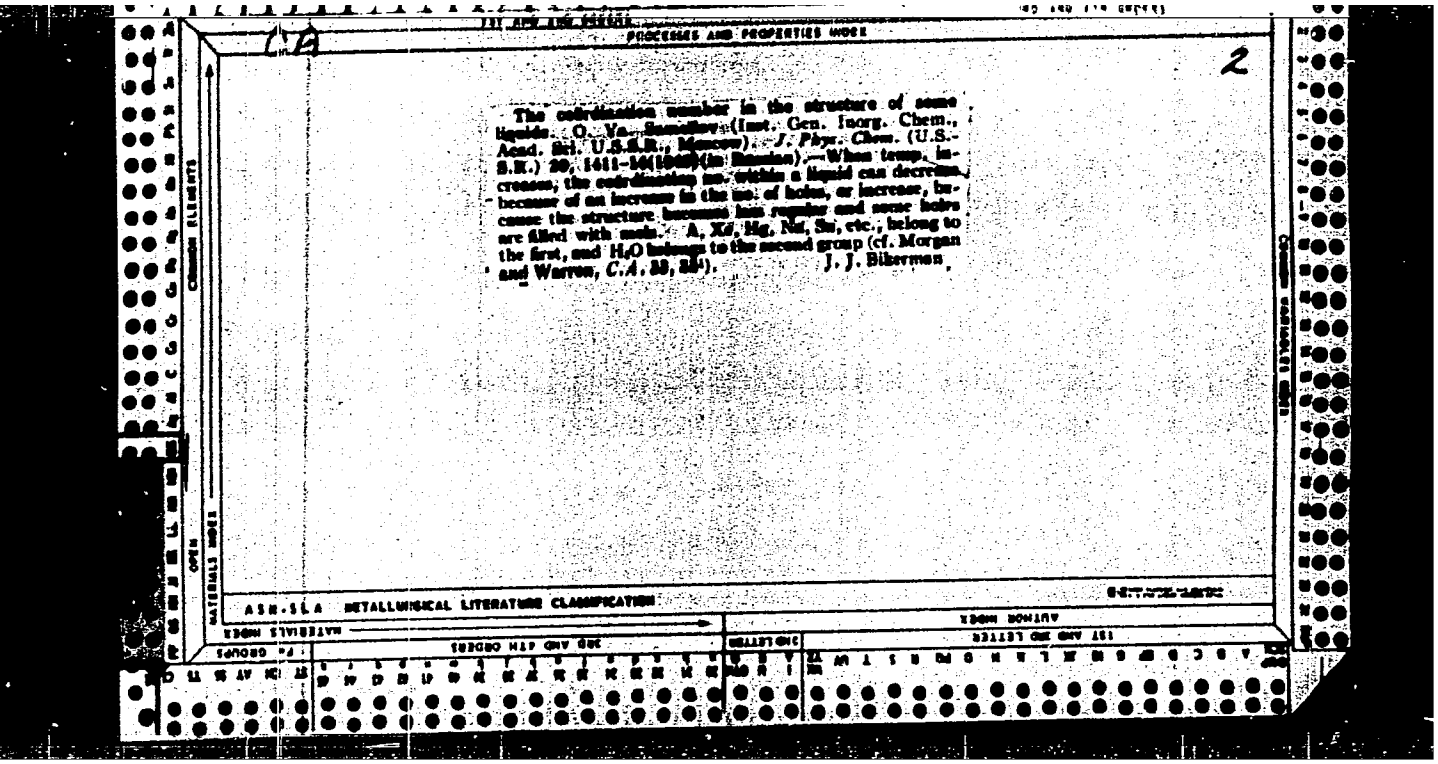

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CA

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Regularity observed in melting metals: Li, Na, K, Zn, Cd, and Hg. O. Ya. Samoilov. *Doklady Akad. Nauk S.S.S.R.* **58**, 1073–5 (1947).—The area under the 1st max. in the curve of radial distribution of atoms in a liquid state dets. the av. no. of atoms in the liquid in the region of close coördination in respect to a given atom. The variation of this no. on melting gives a regular progression from Li to Na and to K, and from Zn to Cd and to Hg. In the solids these nos. are 14 and 12, resp., for the 2 groups. The resp. areas under the 1st max. are: 9.8, 9.3, 8.0, 10.8, 8.3, and 6.0. The results can be interpreted in terms of the rate of falling-off of the interat. attraction with increase of radius. In the order given above, the 1st max. is shifted less and less in respect to the 1st coördination sphere in the solid, indicating a greater loss of definition of the 2nd sphere of coördination with increase of at. size. G. M. Kosolapoff

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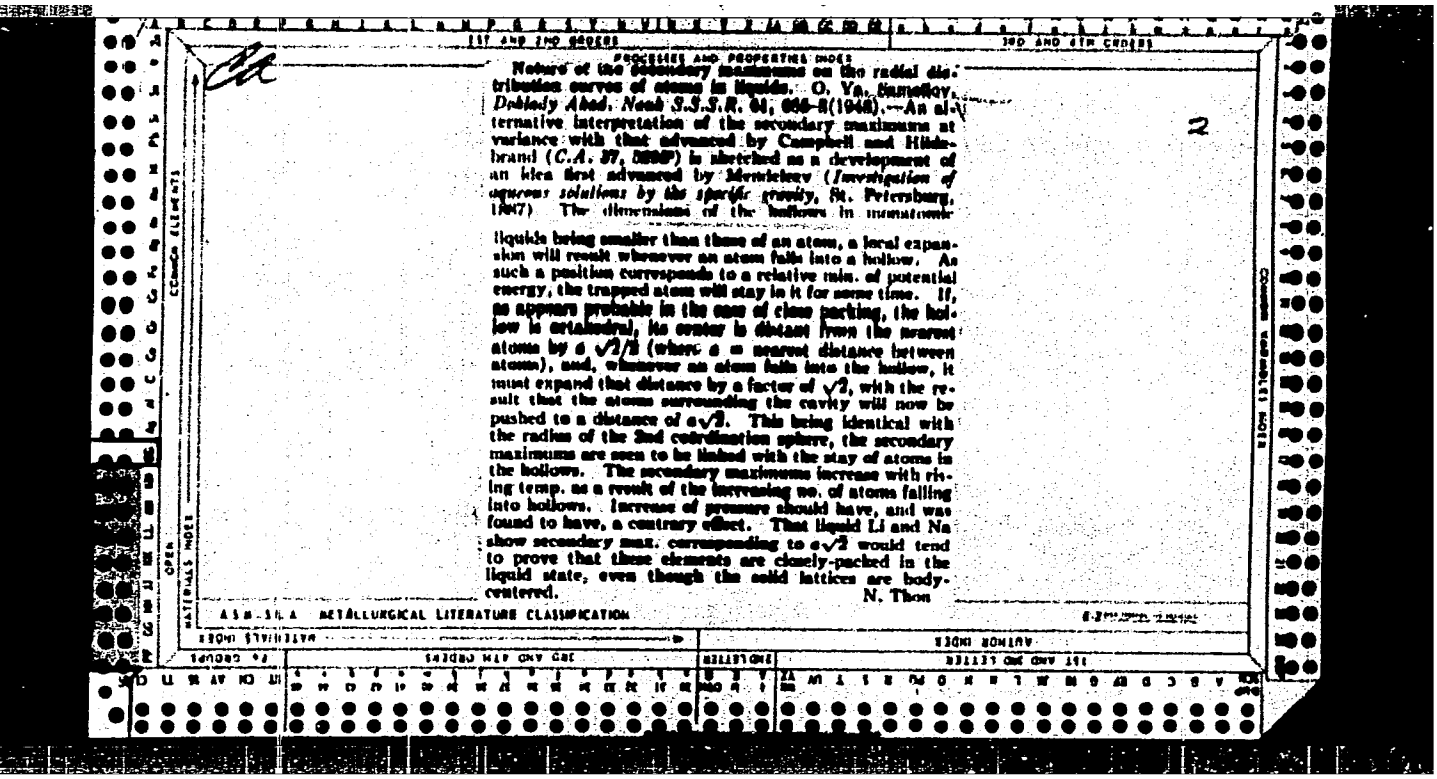

PROCESSES AND PROPERTIES INDEX

Nature of the secondary maximums on the radial distribution curves of atoms in liquids. O. Ya. Samoilov. *Doklady Akad. Nauk S.S.S.R.* 64, 685-8(1948).—An alternative interpretation of the secondary maximums at variance with that advanced by Campbell and Hildebrand (*C.A.* **37**, 5888*) is sketched as a development of an idea first advanced by Menshchev (*Investigation of aqueous solutions by the specific gravity*, St. Petersburg, 1907). The dimensions of the hollows in monatomic liquids being smaller than those of an atom, a local expansion will result whenever an atom falls into a hollow. As such a position corresponds to a relative min. of potential energy, the trapped atom will stay in it for some time. If, as appears probable in the case of close packing, the hollow is octahedral, its center is distant from the nearest atoms by $a\sqrt{2}/2$ (where a = nearest distance between atoms), and, whenever an atom falls into the hollow, it must expand that distance by a factor of $\sqrt{2}$, with the result that the atoms surrounding the cavity will now be pushed to a distance of $a\sqrt{2}$. This being identical with the radius of the 2nd coordination sphere, the secondary maximums are seen to be linked with the stay of atoms in the hollows. The secondary maximums increase with rising temp. as a result of the increasing no. of atoms falling into hollows. Increase of pressure should have, and was found to have, a contrary effect. That liquid Li and Na show secondary max. corresponding to $a\sqrt{2}$ would tend to prove that these elements are closely-packed in the liquid state, even though the solid lattices are body-centered.

N. Thon

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Thermochemistry and atom structure. III. Heats of formation of anhydrous oxalates of Mg, Ca, Sr, and Ba. A. F. Kapustinskii and O. Ya. Samoilov (N. S. Kurnakov Inst. Gen. Inorg. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 337–43; cf. *C.A.* 43, 2827*f*.—The following heats of soln., q, in kcal./mole, in HCl (molal concn. in parentheses) were detd. in an isothermal calorimeter at 25 ± 0.01°. MgC_2O_4 (3.8) + 2.03; CaC_2O_4 (3.8) −0.02; $CaC_2O_4.H_2O$ (3.8) −6.83; SrC_2O_4 (3.8) −2.45; BaC_2O_4 (1.9) −3.71; $MgCl_2.6H_2O$ (3.8) + 0.45; $CaCl_2$ (3.8) + 16.78; $SrCl_2$ (3.8) +9.57; $BaCl_2$ (1.9) +1.71; $H_2C_2O_4$ (3.8) −2.34; $H_2C_2O_4$ (1.9) −2.57. The solids were in amts. giving approx. a 0.03 *M* soln. The heat of formation Q of anhyd. CaC_2O_4 is $Q = Q_1 + Q_2 - 2Q_3 + q_1 + q_2 - q_3$ where Q_1 and Q_2 are the heats of formation of anhyd. $CaCl_2$ and $H_2C_2O_4$, resp., Q_3 is that of HCl in 3.8 *M* soln., and q_1 and q_2 are the heats of soln. of solid $CaCl_2$ and $H_2C_2O_4$, resp., in 3.8 *M* HCl. The same procedure applies to Q for anhyd. MgC_2O_4, SrC_2O_4, and BaC_2O_4. The heat of soln. of anhyd. $MgCl_2$ in 3.8 *M* HCl is detd. by adding the heat of hydration of $MgCl_2$ to the hexahydrate, 32.89 kcal./mole, to the heat of soln. of $MgCl_2.6H_2O$. With the heats of formation of anhyd. $MgCl_2$, $CaCl_2$, $SrCl_2$, $BaCl_2$, and $H_2C_2O_4$, equal, resp., to 153.3, 190.6, 197.87, 205.28, and 197.6, and the heats of formation of HCl in 3.8 *M* and 1.9 *M* soln., resp., to 38.71 and 39.07 kcal./mole, the heats of formation of the anhyd. oxalates are: MgC_2O_4 302.5, CaC_2O_4 325.2, SrC_2O_4 327.7, BaC_2O_4 327.6 kcal./mole. For CaC_2O_4, the value tabulated by Bichowsky and Rossini, 333.1, is in error owing to their use of data of Berthelot actually pertaining to the hydrated salt; the heat of hydration $CaC_2O_4 + H_2O \rightarrow CaC_2O_4.H_2O$ (from the heats of soln. in HCl) is 6.8, which gives for the heat of formation of CaC_2O_4 332.0, close to the value erroneously attributed by B. and R. to the anhyd. salt. A plot of the heats of formation of the anhyd. oxalates per g.-equiv., against the log of at. no. of the cation, gives the expected straight line, above and practically parallel to the corresponding straight line for the carbonates. In both cases Ca lies a little above the line, Be (carbonate) below it. The difference of the heats of formation per g. equiv. of the oxalate and the carbonate of the same alk. earth metal is const., 17 ± 1 kcal. With this value, the g.-equiv. heat of formation of BeC_2O_4 is found = 134.3 kcal., close to the graphically estd. 136, or 272 kcal./mole. The correct value should be around 270 kcal./mole.

N. Thon

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Hydration of electrolyte ions in aqueous solution. O. Ya. Samoilov (Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 77, 633-6(1951).—Darmois' (*C.A.* 37, 4610[8]; 40, 6942[2]) interpretation of the exptl. fact that the temp. coeff. of the mobility U of hydrated ions is greater than the temp. coeff. of the viscosity η of H_2O, by progressive dehydration with increasing temp. and corresponding decrease of the Stokes radii r of the ions, fails to account for the fact that for nonhydrated ions $dU/UdT < d\eta/\eta dT$, whereas Stokes' equation $U\eta r$ = const. gives $dU/UdT = -d\eta/\eta dT$. Actually, the very concept of a fixed no. of H_2O mols. bound to an ion, and of a definite Stokes radius, is at fault. The total hydration energy of an ion consists of a part due to the nearest surrounding H_2O mols., which may either increase or decrease the energy of the system ion-H_2O, and a part due to the sum of the actions of the more remote H_2O mols., and which always result as a decrease of that energy. The activation energy E of η of the H_2O mols. nearest to the ion is increased by hydrated ions, but decreased by nonhydrated ions. Consequently, in the 2nd instance, the mean time of stay of H_2O around the ion is decreased ("neg. hydration"), and is increased in the 1st instance. Assignment of a fixed hydration no. to an ion and introduction of a definite Stokes r would be justified only if that time of stay were very markedly longer than the corresponding time in pure H_2O. That this is not so follows from a consideration of Stokes' equation in the form $U\eta_1 r_s$ = const., with η_1 = viscosity of H_2O in the nearest neighborhood of the ion, r_s = crystallochem. radius of the ion. With $E + \Delta E$ = activation energy of the viscous flow as modified by the ion, one has $[d\eta/\eta dT] - [d\eta_1/\eta_1 dT] = \Delta E/RT^2$ and $[dU/UdT] + [d\eta/\eta dT] = \Delta E/RT^2$. Consequently, if $\Delta E > 0$ (hydrated ions), $dU/UdT > -d\eta/\eta dT$, and if $\Delta E < 0$ (neg. hydration), $dU/UdT < -d\eta/\eta dT$. From available data for η for H_2O and dU/UdT for Li^+ and Cl^-, one finds for Li^+, $\Delta E \approx 0.4$, and for Cl^-, $\Delta E \approx -0.4$ kcal./mole H_2O; these figures are lower than the definitely too high estns. of Eucken (*C.A.* 43, 6403a). The value of ΔE for Li^+ shows that even in this instance of a strongly hydrated univalent ion, there can be no question of any permanent binding of H_2O mols. by the ion; the time of stay τ of H_2O mols. around Li^+ is only twice that (τ_0) in a pure H_2O medium (by $\tau = \tau_0 e^{\Delta E/RT}$). At most, one can speak of a mean coördination no. of H_2O mols. around an ion; this no. is increased, in comparison with pure H_2O, if $\tau > \tau_0$, and is decreased if $\tau < \tau_0$. The mean d. of H_2O around a hydrated ion is higher, and around a nonhydrated ion lower than that of pure H_2O. Electrolytic transference of H_2O consists in transference of vols. of greater or smaller d. Motion of hydrated cations to the cathode is accompanied by effective transference of H_2O in the same direction; motion of nonhydrated anions to the anode is accompanied by effective transference of H_2O in the opposite direction.

N. Thon

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

2

Influence of hydrogen ions on the heats of solution of salts.

O. Ya. Samoilov (N. S. Kurnakov Inst. Gen. Inorg. Chem., Moscow). *Doklady Akad. Nauk S.S.S.R.* 81, 641-4 (1951).—Integral heats of soln. L of LiCl, KCl, $MgCl_2.6H_2O$, $CaCl_2$, NMe_4Br (0.05 moles/50 moles H_2O), and NaCl (0.17 moles/50 moles H_2O), in aq. HCl solns. of m (moles HCl/50 moles H_2O) up to 3.5, by isothermal calorimetry at 25°. For all these salts, with the exception of NMe_4Br, pos. L decrease, and neg. L increase, linearly with increasing m. The neg. slopes increase from LiCl to NaCl to KCl; consequently, the effect is linked with hydration of the dissolving cations. The heat of soln. of NaCl in aq. solns. of HCl, $MgCl_2$, and LiCl decreases linearly with increasing concn. m of the corresponding electrolyte, the slope decreasing in that order, but L of NaCl in aq. solns. of KCl increases linearly with increasing m of KCl. These effects cannot be interpreted on the basis of the heat of hydration H and the radius of the H_3O^+ ion. For that ion, H can be estd. to 96 kcal., as against 136 kcal. for Li^+; however, HCl depresses L of NaCl more strongly than does LiCl. The radius of the H_3O^+ ion should be close to that of the H_2O mol., 1.38 A., i.e. close to the radius of K^+ = 1.33 A.; nonetheless, the effects of HCl and KCl on L of NaCl are opposite. A possible interpretation rests on the concept of the proton wandering from one H_2O mol. to another, and staying only a short while with any definite H_2O. This results, statistically, in a mean pos. elec. charge ϵ (smaller than the elementary charge e) being imparted to each H_2O mol., and can be represented formally by a "mean" ion $H_{2+2\epsilon/e}O^{\epsilon/e+}$. Such an ion can be conceived owing to the fact that, probably, the mean time of stay of a proton with a definite H_2O mol. is much shorter than the mean time of stay of that mol. in its temporary equil. position. The existence of the mean pos. charge ϵ results in some addnl. repulsion between the hydrating H_2O mols. and the hydratable cation of the salt going into soln. The energy of that repulsion lowers H of the cation, and, consequently, lowers L. At the same time, the mean pos. charge of the H_2O mols. results in some addnl. attraction to the anion of the salt. Generally, the repulsion effect on the cation predominates, but the attraction effect on the anion can become predominating if the anion is much smaller than the cation, as in NMe_4Br. In this case, L increases with increasing m of HCl, as observed. The effect of HCl on L of salts permits an estn. of the coordination no. of ions in aq. solns. It turns out that in dil. solns. each cation is surrounded, on the av., by 4 H_2O mols.

N. Thon

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
General and Physical Chemistry

Thermochemistry and structure of atom i. VI. Thermochemistry of boron; application of the thermochemical logarithmic rule to the elements of the third group of the periodic system. A. F. Kapustinskii and O. Ya. Samoilov. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 245–60 (Engl. translation).—See *C.A.* 46, 9400d. H. L. H.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

Coordination numbers of the ions Mg^{++}, Ca^{++}, Sr^{++}, and Ba^{++}, in aqueous solutions. O. Ya. Samoilov. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 885-8 (Engl. translation). See *C.A.* 47, 437e. H. L. H.

9-2 54

Chemical Abst.
Vol. 48 N. 9
May 10, 1954
Inorganic Chemistry

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

USSR/Chemistry - Alkali Metals May/Jun 52

"Coordination Numbers and Hydration of Li^+, Na^+, K^+, Cl^-, Br^- Ions in Aqueous Solutions," O. Ya. Samoylov, Inst of Gen and Inorg Chem imeni N. S. Kurnakov, Acad Sci USSR

"Iz Ak Nauk, Otdel Khim Nauk" No 3, pp 398-405

The integral heat of solns of LiCl, NaCl, NaBr·$2H_2O$, $NaJ·2H_2O$, $N(CH_3)_4Br$ was measured in aq HCl solns of various concns at 25° by means of a calorimeter with an isothermic sheath. A thermochem method was developed for estg the coordination numbers of Li, Na, Cl, Br, and I ions at 25° in aq solns. In dild solns they are close to the coordination number of water mols in water. The findings are given in tables and graphs and the math formulas and calcns are cited.

220T3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

USSR/Chemistry - Lithium and Beryllium Salts Jun 52

"Structure of Aqueous Solutions of Electrolytes and Hydration of Ions," A.F. Kapustinskiy, O.Ya. Samoylov, Inst of Gen and Inorg Chem imeni N.S. Kurnakov, Acad Sci USSR

"Zhur Fiz Khim" Vol XXVI, No 6, pp 918-926

Detd heats of soln of Li_2SO_4, K_2SO_4, $BeSO_4$, and $MgSO_4 \cdot 7H_2O$ in aq HCl solns of varying concn. On the basis of dependence of heat of soln on HCl concn, calcd coordination numbers of Li, Na, K, Be, Mg, Ca, Sr, Ba, Cl, Br, and I ions. Found that upon sufficient dilu, the coordination numbers of all ions approach that of pure water (isoactive point). Detd concns of chlorides at which this takes place. Found that the coeff of activity of water depends on the polarizing effect of ions and established that there is approx proportionality between isoactive points and the inverse polarizing force exerted by dissolved ions.

220T35

SAMOYLOV, O. Ya.

220T35

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

USSR

Changes in Co-Ordination Number During the Melting of Metals. / O. Ya. Samoilov / (*Doklady Akad. Nauk S.S.S.R.*, 1952, 83, (3), 447–450). — [In Russian]. S. has tabulated the values for Li, Na, K, Zn, Cd, Hg, Al, In, and Tl, of n_2 (the co-ordination number for the molten metal), n_1 (the number of atoms in the co-ordination sphere of the solid, corresponding to the first max. in the curve of radial distribution), and ΔT (the difference between the m.p. of the metal and the temp. for which the curve of radial distribution was obtained). Although ΔT is large in some cases (e.g. Tl), it appears that $n_2 < n_1$, and the difference increases with increasing atomic number. However, for Sn, $n_2 \cong n_1$; and in the case of Ga, $n_2 > n_1$. The change in n might be explained by assuming the existence in the liquid, at temp. near the m.p., of fluctuating "cracks", bounded by "blocks" of atoms (cf. Frenkel, "Kinetic Theory of Liquids", 1946); these blocks may be considered to be cubes in order to calculate the mean number of atoms/block. The width of a "crack", $\delta \cong b(\gamma - 1)$, where b is the length of the edge of the cube, and γ the ratio of the vol. of the liquid and solid at the m.p. However, widths calculated by this formula (e.g. 0·10, 0·11, and 0·07 Å. for Na, K, and Hg, resp.) are insufficient to cause the observed change in n. An alternative explanation lies in the existence of "holes" instead of "cracks". To investigate the dependence of n on the number of separate local gaps in a liquid, S. carried out experiments with models consisting of layers of spheres or discs. A number of these were taken out at random from each layer. The mean co-ordination number of the remainder in the internal layers decreased linearly with the number of voids. The graph obtained could be used in conjunction with the values of n_2, and the known increases in vol. on melting, to calculate the vol. and linear dimension (d) of the "holes." Thus, for molten Li, Na, K, Hg, and In, $d = 1{\cdot}1$, $1{\cdot}4$, $1{\cdot}3$, $1{\cdot}3$, and $1{\cdot}4$ Å., resp., and these dimensions are completely satisfactory.—G. Y. E. T.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

Chemical Abst.
Vol. 48
A pr. 10, 1954
General and Physical Chemistry

4 (V)

Hydration of ions in aqueous solutions. O. Ya. Samoilov. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 242–9.—A theoretical discussion. The effect of ions on the translational motion of adjacent H_2O mols. is considered. Mg, Ca, Li, and Na ions decrease the rate of this motion ($t_i > t$, where t_i is the time during which a H_2O mol. is in the coördination sphere of the ion in soln. and t is the corresponding time for pure H_2O), and K, Cs, and chloride ions increase the rate ($t_i < t$). The values of t_i for Li, Na, K, and chloride ions are $3.0t$, $1.8t$, $0.9t$, and $0.6t$, resp. The crit. ionic radius for hydration in the case of univalent ions is abou[illegible] 25 A. J. W. Loweberg, Jr.

AF 4-28-54

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

USSR/Physics - Solid State Physics Nov 53

"Conference on the Liquid State of Matter, Held 28-30 May 1953 at Kiev by the Academy of Sciences, Ukrainian SSR, and Kiev State University im T. G. Shevchenko," S. D. Ravikovich, G. P. Roshchina and F. F. Skryshevskiy

Usp Fiz Nauk, Vol 51, No 3, pp 393-405

Summarize reports by the following: V. I. Danilov, on scattering of x-rays in liquids; A. F. Skryshevskiy, on x-ray study of solns of KOH, NaOH, LiOH, LiCl, and H_2SO_4; Ye. A. Foray-Koshits, on integral analysis of intensity curves; P. V. Demagin, Ye. G. Shvidkovskiy, O. Ya. Samoylov et al. on x-ray studies of liquid structure; A. Z. Golik, on characteristics of molecular structure of liquids; I. V. Radchenko, on modeling of liquids; F. K. Shestakovich, on new liquid models and influence of central and dipole forces on close ordering; A. Z. Golik and his associates S. D. Ravikovich, A. V. Orishchenko, V. F. Solomko, and N. A. Ryndich, on viscosity and density of matter in the liquid state; V. M. Chulanovskiy and D. S. Kamenetskaya, on the influence of molecules' size and the intermolecular intensity on viscosity coeff; A. F. Frynza, on thermo-diffusion in binary systems; S. S. Urazovskiy, presence of grouping of identical atoms; A. R. Regel', on relation between electrical properties and structure of liquids; B. F. Vuks, on light-dispersion method for studying liquids' structure.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

Boundary between hydrating and nonhydrating singly-charged ions. O. Ya. Samoilov (N. S. Kurnakov Inst. Gen. and Inorg. Chem., Acad. Sci. U.S.S.R.). *Doklady Akad. Nauk S.S.S.R.* 91, 319–21(1953).—The action of ions on translational motion of the nearest water mol. is characterized by magnitudes of ΔE, the change in ionic potential barrier. The magnitude depends on the crystal radius of the ions, and when $\Delta E > 0$, they hydrate, and when $\Delta E < 0$, they do not. The boundary condition corresponds to $r = 1.27$ A. This corresponds to a hypothetical ion around which the mean surface d. of nearest water mols. corresponds to the mean surface d. of water mols. in water. In the equation $\rho' = n/4\pi(r + 1.38)^2$, n is coördination no., $r + 1.38$ is radius of ion and mol. of water, $4\pi(r + 1.38)^2$ is the surface of 1st coördination sphere of ion and represents the mean surface d. of water mols. nearest the ion. At 25° $\rho'_{H_2O} = 0.044$ A.; from this $r = 1.24$ A. which corresponds closely to the value above obtained by thermochem. methods. This value falls between K and Na for alkali metals.

V. N. Bednarski

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

2

The mechanism of the transfer of hydrogen ions in water solutions of acids. O. Ya. Samoilov. *Doklady Akad. Nauk S.S.S.R.* 95, 587-90(1954); cf. *C.A.* 48, 12521f.—CH
The mechanism of the transfer of H^+ in acid solns. is discussed theoretically. The av. lifetime (τ') for the existence of the ion H_3O^+ is evaluated and compared with the av. time (τ'') required for a mol. of H_2O to undergo ionization. It was found that $\tau'' >> \tau'$; this shows that the transfer of H^+ from one mol. of H_2O to another is a slow process.
J. Rovtar Leach

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

USSR/Chemistry - Physical chemistry

Card 1/1 : Pub. 22 - 26/44

Authors : Lipilina, I. I., and Samoylov, O. Ya.

Title : Thermochemical study of the structure of diluted aqueous uranyl chloride and uranyl nitrate solutions

Periodical : Dok. AN SSSR 98/1, 99-102, Sep 1, 1954

Abstract : The integral heats of solution of $UO_2Cl_2 \cdot 3H_2O$ and $UO_2(NO_3)_2 \cdot 6H_2O$, were measured in H_2O and in aqueous acid solutions by the thermochemical method ordinarily used for the determination of coordination numbers of ions in aqueous solutions. The relation between the heats of solution of the salts and the acid concentration in the solvent was established. It was also established that the structure of diluted solutions corresponds to the least possible change in the structure of H_2O, i.e., during formation of diluted solutions the structure of H_2O remains basically unchanged. Fourteen references: 7-USSR; 4-USA and 3-German (1909-1953). Table; graph; drawing.

Institution : Acad. of Sc. USSR, The N. S. Kurnakov Institute of General and Inorganic Chemistry

Presented by : Academician I. I. Chernyaev, April 10, 1954

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. Ya.

"Negative Hydratation of Ions in Aqueous Solutions", a paper presented at the second conference on the Liquid State of Matter, Kiev, 30 May to 3 June 1955, Usp. Fiz. Nauk, April 1955

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.Ya.

Relation between the mobility and self-diffusion coefficients of ions in solutions. Izv.AN SSSR. Otd.khim.nauk no.3:572-573 My-Je '55. (MLRA 8:9)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR.

(Ions) (Solution (Chemistry))

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

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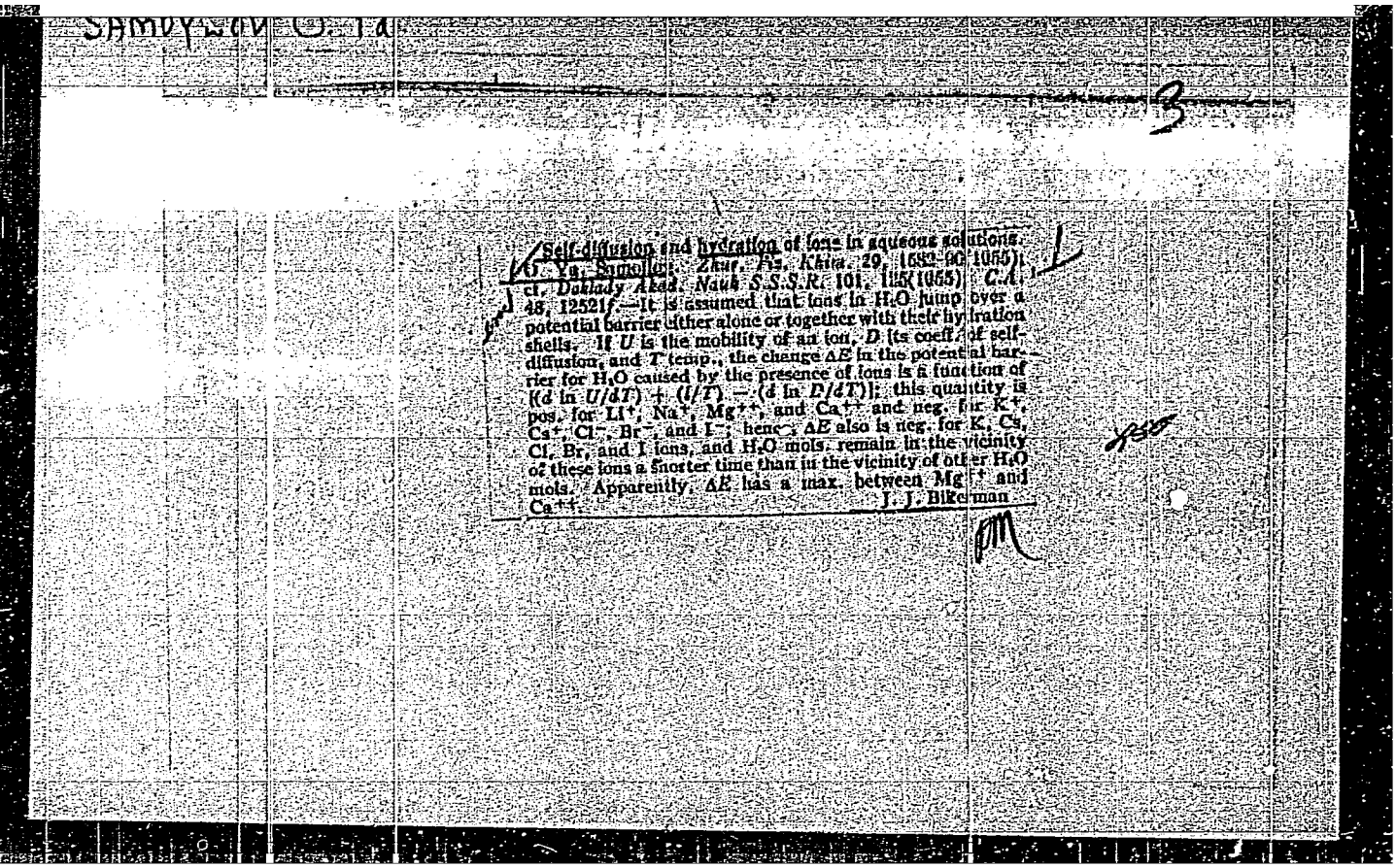

Self-diffusion and hydration of ions in aqueous solutions. G. Ya. Samoilov. *Zhur. Fiz. Khim.* 29, 1682-90 (1955). cf. *Doklady Akad. Nauk S.S.S.R.* 101, 115 (1955); *C.A.* 48, 12521f.—It is assumed that ions in H_2O jump over a potential barrier either alone or together with their hydration shells. If U is the mobility of an ion, D its coeff. of self-diffusion, and T temp., the change ΔE in the potential barrier for H_2O caused by the presence of ions is a function of $(d \ln U/dT) + (1/T) - (d \ln D/dT)$; this quantity is pos. for Li^+, Na^+, Mg^{++}, and Ca^{++} and neg. for K^+, Cs^+, Cl^-, Br^-, and I^-; hence, ΔE also is neg. for K, Cs, Cl, Br, and I ions, and H_2O mols. remain in the vicinity of these ions a shorter time than in the vicinity of other H_2O mols. Apparently, ΔE has a max. between Mg^{++} and Ca^{++}. J. J. Bikerman

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O. YA.

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 33/51

Authors : Samoylov, O. Ya.

Title : The mechanism of self-diffusion in liquids and its characteristics in the case of water

Periodical : Dok. AN SSSR 101/1, 125-128, Mar 1, 1955

Abstract : A thesis is presented on the self-diffusion of atoms, molecules, ions in liquids with particular reference to water. The equilibrium position of the particles in the water were found to be surrounded by considerable potential barriers and the relay motion can be realized only by leaps from one equilbrium position into another. The water nuclei in which the molecules fluctuate are composed of four molecules surrounding a selected molecule in the form of a tetrahedron. The time in which a given particle remains in one equilibrium position was calculated. Seven references: 3 USSR, 3 USA and 1 German (1938-1954). Drawing.

Institution : Acad. of Sc., USSR, The N. S. Kurnakov Institute of Gen. and Inorg. Chem.

Presented by: Academician S. I. Vol'fkovich, September 7, 1954

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.Ya.

Negative ion hydration in aqueous solutions. Dokl. AN SSSR 102 no.6:1173-1176 Je'55. (MLRA 8:10)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova Akademii nauk SSSR. Predstavleno akademikom I.I.Chernyayevym
(Hydration) (Ions)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.Ya.

Structure of diluted aqueous electrolyte solutions and the hydration of ions. Zhur.neorg. khim. 1 no.6:1202-1209 Je '56. (MLRA 9:10)

1.Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova Akademii nauk SSSR.
(Electrolytes) (Hydration)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.Ya.

Coordination numbers of Rb^+ and Cs^+ ions in aqueous solutions, Izv. AN SSSR.Otd.khim.nauk no.11:1415-1416 N '56. (MLRA 10:3)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR.
(Rubidium) (Cesium) (Ions)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV O. Ya.

Structures of some liquids. I. Monatomic liquids. O. Ya. Samoilov (N. S. Kurnakov Inst. Gen. and Inorg. Chem., Moscow). *Zhur. Fiz. Khim.* 30, 241-50(1956).—The structural characteristics of liquids cannot be understood without consideration of the thermal motion of the particles of which the liquids are composed (atoms, mols., ions). For monat. liquids, the curves of radial distribution can be used to explain the relation of structure to the thermal motion of the atoms. The coördination nos. of atoms and of the liquid are of particular interest in this case. In spite of the fact that the consecutive equil. coördination spheres in liquids are generally similar (at least at temps. not too far removed from the m.p.) with the sequence of coördination spheres in the corresponding solids, the coördination no. changes during fusion. In typical metals, the no. of atoms is reduced in the closest coördination range, but in the elements of the 4th and 5th groups of the periodic table the no. of atoms in the nearest coördination range is increased. The importance of the at. coördination no. for the characterization of monat. liquids is increased by the fact that this no. depends on the mutual arrangement of the temporary equil. location of the atoms in the liquid (original lattice) and on the translational motion of the atoms (their autodiffusion in the liquid).

W. M. Sternberg

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

KAPUSTINSKIY, A.F.; LIPILINA, I.I.; SAMOYLOV, O.Ya.

Gold calorimeter with sensitivity of 0,00005° for studying the thermochemistry of solutions. Investigation of the heat capacity of cesium iodide solutions with a tolerance of 0, 03 % (with English summary in insert). Zhur.fiz.khim. 30 no.4:896-900 Apr. '56. (MLRA 9:9)

1. Akademiya nauk SSSR, Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova, Moskva.
(Calorimeters) (Solution (Chemistry))

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, Oleg Yakovlevich -- awarded sci degree of Doc Chem Sci for the 8 Oct 57 defense of dissertation: "Structure of water solutions of electrolytes and the hydration of ions" at the Council, Inst of Genl and Inorganic Chem imeni Kurnakov, AS, USSR; Prot No 15, 7 Jun 58. (BMVO, 11-58,27)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

5(2) PHASE I BOOK EXPLOITATION SOV/2735

Samoylov, Oleg Yakovlevich

Struktura vodnykh rastvorov elektrolitov i gidratatsiya ionov (Structure of Aqueous Solutions of Electrolytes and Hydration of Ions) Moscow, Izd-vo AN SSSR, 1957. 179 p. 4,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut obshchey i neorganicheskoy khimii.

Resp. Ed.: A.F. Kapustinskiy, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: N.G. Yegorov; Tech. Ed.: P.S. Kashina.

PURPOSE: The book is intended for physicists, chemists, and chemical engineers.

COVERAGE: The book discusses the structure of aqueous solutions of electrolytes, the thermal motion of atoms, and a new approach to studying hydration of ions in solutions. Problems considered in the book were studied at the Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N.S. Kurnakov, Academy of Sciences, USSR). The author thanks A.F. Kapustinskiy, Corresponding Member of the Academy of Sciences, Professors V.Ya. Anosov and M.A. Klochko. and Academician A.N. Frumkin. He also thanks A.Ya. Samoylova. There are 229 references: 90 English, 89 Soviet, 25 German, 18 French, 5 English, 1 Italian, and 1 Japanese.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.Ya.

11-9-7/14

AUTHOR: Samoylov, O.Ya. and Sokolov, D.S.

TITLE: Connection of Vertical Hydrochemical Zonation of Artesian Waters with Peculiarities of Thermal Motion of Water Molecules and Ions in Solutions (Svyaz' vertikal'noy gidrokhimicheskoy zonal'nosti artezianskikh vod s osobennostyami teplovogo dvizheniya molekul vody i ionov v rastvorakh)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, 1957, # 9, p 72-80 (USSR)

ABSTRACT: The author explains the general features of vertical hydrochemical zonation of artesian waters by processes proceeding in solutions under conditions of slow descending motion of water molecules and ions, arise additional flows of particles superimposed upon the general motion of artesian waters. The author puts the following conception into the basis of his research: the thermal motion of particles in a liquid consists in the fluctuations of particles around some temporary equilibrium states on the one hand, and jump-like transitions from one equilibrium state to another on the other hand. The translational motions of particles are activated jumps according to Polissar (Ref. 17) and Wirtz (Ref. 18). The author summarizes the results of his research as follows:

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11-9-7/14

Connection of Vertical Hydrochemical Zonation of Artesian Waters with Peculiarities of Thermal Motion of Water Molecules and Ions in Solutions

1. The average frequency of activated jumps of sulution particles (water molecules and ions) changes with depth. This gives rise to additional flows of particles of ions downwards and of water molecules - upwards. The observed increase in mineralization of artesian waters with depth is connected with this phenomenon.

2. Additional flows and correspondingly additional velocities of different ions are unequal. Hydrated ions (most of cations and also HCO_3^- and CO_3^{2-}) have considerably lesser additional velocities than ions characterized by negative hydration (most of anions).

3. According to the magnitude of additional velocities downwards the anions can be arranged in the following series: $HCO_3^- < SO_4^{2-} < Cl^- < Br < J$. The observed vertical hydrochemical zonation of artesian waters depends upon this difference of velocities. In case of cations, the connection of zonation with hydration is manifested less distinctly. The article contains 1 graph and 18 references, 13 of which are Slavic.

Card 2/2

Inst. Gen & Inorg. Chem im S. Ordzhonikidze

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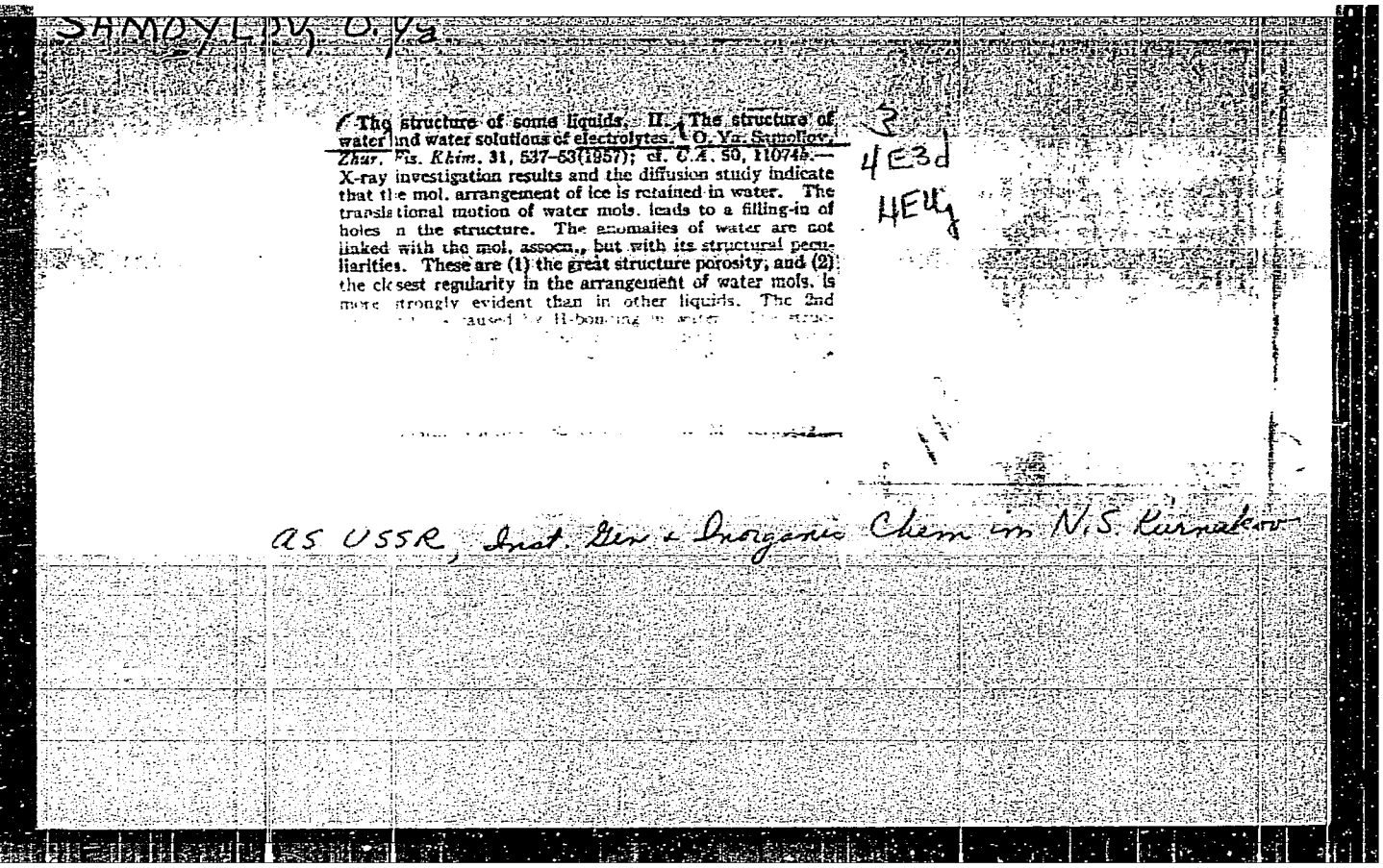

SAMOYLOV O.Ya.

The structure of some liquids. II. The structure of water and water solutions of electrolytes. O. Ya. Samoilov. *Zhur. Fiz. Khim.* 31, 537–53(1957); cf. *C.A.* 50, 11074b.—X-ray investigation results and the diffusion study indicate that the mol. arrangement of ice is retained in water. The translational motion of water mols. leads to a filling-in of holes in the structure. The anomalies of water are not linked with the mol. associn., but with its structural peculiarities. These are (1) the great structure porosity, and (2) the closest regularity in the arrangement of water mols. is more strongly evident than in other liquids. The 2nd [illegible] caused by H-bonding in water [illegible]

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SAMOYLOV, O. Ya.

tion of the specific heat of casein solutions with a precision of 0.03%. A. F. Kapustinskii, [illegible], and O. Ya. Samoilov. (N. S. Kurnakov Inst. Gen. Chem. Moscow.) J. Chim. Phys. 54, 343-7(1957).

with an isothermal envelope for detg. the heats of the sp. heats of solns. is described. The solns. are Au or Pt. The temp. is measured by a [illegible] resistance thermometer with a sensitivity of 5 × 10⁻⁴ °C. The sp. heats of aq. solns. of CaCl at 25° for molar concns. between 1.08 and 0.22 were detd. ϕ_L was detd. as 31.02 cal./mole degree for a soln. at infinite dilu. B. B.

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SOV/20-121-6-26/45

3(4)
AUTHOR: Samoylov, O. Ya.

TITLE: Concerning the Theory of the Temperature Dependence of the Coordination Numbers of the Ions in Aqueous Solutions (K teorii temperaturnoy zavisimosti koordinatsionnykh chisel ionov v vodnykh rastvorakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 121, Nr 6, pp 1043-1044 (USSR)

ABSTRACT: This paper investigates the problem of the temperature dependence of the coordination numbers of particles in liquid solutions of electrolytes. The particles of the liquid and especially the water molecules in the aqueous solutions of electrolytes constantly have a translatory motion - they constantly perform activated jumps and interchange their next neighbors. The observed values of the coordination numbers are connected with 2 contrary processes: 1) with activated jumps of the particles which convey them away from the immediate neighborhood of the chosen particle and 2) with activated jumps of particles which make the particles enter the immediate neighborhood of the chosen particle. The first

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Concerning the Theory of the Temperature Dependence of the Coordination Numbers of the Ions in Aqueous Solutions

process causes a decrease, the second - an increase of the coordination number. The coordination number of the selected particle depends on the equilibrium of the exchange of the particles placed in its immediate neighborhood. There is an equilibrium condition for an aqueous solution of an electrolyte. The problem of the coordination numbers is investigated for the region of diluted solutions, and it is assumed that the immediate neighborhood of the selected particle contains only water molecules. The equation $n_i j_i = nj$ may serve as an equilibrium condition; n_i denotes the coordination number of the ion, j_i the average (with respect to 1 sec) number of the activated jumps of the water molecules in the immediate neighborhood of the ion, n and j - the coordination number and the average (with respect to 1 sec) number of the activated jumps of the water molecules in water. An equation is given for the temperature dependence of the ratio n_i/n. If the temperature increases, the coordination numbers of the ions of negative hydration ($\Delta E < 0$) will increase, but the

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Concerning the Theory of the Temperature Dependence of the Coordination Numbers of the Ions in Aqueous Solutions

coordination numbers of the ions with positive hydration will decrease (with respect to the coordination numbers of the water molecules). If the temperature is increased, the water will be displaced to or from the ions (according to the sign of ΔE). The investigated dependence of the temperature variations on the values of the potential barriers (which separate the neighboring positions of the equilibrium of the particles) is a general property of many liquid solutions. The dissociation of compounds in liquids at higher temperatures is a manifestation of this dependence. According to the results of this paper, the dissociation in many cases can be reduced to the following: If the temperature increases, the particles of the liquid are displaced within a region with lower values of the potential barriers. The coordination numbers of the ions depend only slightly on temperature. It is necessary to endeavor to determine experimentally the temperature dependence of the coordination numbers of the ions in aqueous solutions. There are 3 ref-

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Concerning the Theory of the Temperature Dependence of the Coordination Numbers of the Ions in Aqueous Solutions

erences, which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR
(Institute of General and Inorganic Chemistry imeni N. S. Kurnakov AS USSR)

PRESENTED: April 21, 1958, by I. I. Chernyayev, Academician

SUBMITTED: April 3, 1958

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

SAMOYLOV, O.Ya.

Structure of aqueous solutions of electrolytes and the hydration of ions. Itogi nauki: Khim.nauki 4:48-54 '59.
(MIRA 13:4)

(Electrolytes) (Ions) (Hydration)

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SOV/62-59-5-29/40

5(2,4)

AUTHOR: Sanoylov, O. Ya.

TITLE: On the Problem of the Adsorption of Different Ions From Aqueous Solutions (K voprosu ob adsorbtsii razlichnykh ionov iz vodnykh rastvorov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 5, pp 931-933 (USSR)

ABSTRACT: The translatory motion of the particles of the solution is investigated according to reference 1 in such a manner as if the particles performed activated jumps from one time-equilibrium to the adjacent one. This conception in the present paper forms the basis for the investigation of the adsorption of various ions from aqueous solutions on the surface of solids. The solutions are diluted to a considerable extent, so that ion interaction in them may be neglected. Besides, only the case of a weak hydration is investigated. If a transition (an activated jump) of ions from and to the surface of the solid takes place (average number of ions j_{is} and j_{il} respectively), the relation $\frac{c_{is}}{c_{il}} = \frac{\tau_{is}}{\tau_{il}} = \frac{j_{il}}{j_{is}}$ exists between the concentrations c_{is}, c_{il}

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On the Problem of the Adsorption of Different Ions From Aqueous Solutions

of a type of ions i on the surface and in the remaining volume of the solution and the times τ_{is}, τ_{il} in which the particles are in equilibrium. In the cases of a transition into an other equilibrium under investigation the particles must have the energy $E + \Delta E$ and near the surface $E + \Delta E_s + (1-\alpha)\Delta E$ $(0 < \alpha < 1)$.

It then holds that $j_{is} = j^o_{is} \cdot e^{-\left[E+\Delta E_s+(1-\alpha)\Delta E/RT\right]}$

$j_{il} = j^o_{il} \cdot e^{-(E+\Delta E)/RT}$: $\frac{c_{is}}{c_{il}} = Ae^{-\alpha\Delta E/RT}$

Here ΔE and ΔE_s denote the variation of the activation energy for the jump of any particle (E_s denotes proximity to the surface) as against the activation energy E of a jump of a water molecule in water. The case $\Delta E < 0$ and $\Delta E > 0$ is then more closely investigated, i.e. the case of positive and negative hydration of the particles, and it is found that at certain conditions such ions are mainly adsorbed from aqueous electrolyte solutions as are negatively hydrated. There are 3 Soviet references.

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On the Problem of the Adsorption of Different Ions From Aqueous Solutions

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: September 20, 1958

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5(4) SOV/76-33-5-29/33

AUTHOR: Samoylov, O. Ya. (Moscow)

TITLE: The Importance of the Interaction of Adjacent Particles for the Properties of Aqueous Electrolyte Solutions (Znacheniye dlya svoystv vodnykh elektrolitov vzaimodeystviya blizhayshchikh chastits)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 5, pp 1147 - 1150 (USSR)

ABSTRACT: The hydration of ions can be divided into two processes: a) the short-distance hydration by interaction of the ion with adjacent water molecules and b) the long-distance hydration with the remaining water molecules. The exchange of the water molecules adjacent to the ion is rendered more difficult by some ions, and is accelerated by other ions as compared to pure water. This case is called a negative hydration. Among the alkali ions, K^+, Rb^+, and Cs^+ show negative hydration. The energy of the interaction of the particles depending on their distance was investigated in order to explain the process of negative hydration. In a figure the distances between the particles are plotted as abscissas, the inter-

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The Importance of the Interaction of Adjacent Particles for the Properties of Aqueous Electrolyte Solutions

action energies as ordinates (H = ion - water, W = water - water). The interaction between ion and water decreases slower with increasing distance than the interaction between two water molecules. It is not necessary to use the full energy of interaction in order to remove a water molecule from the vicinity of an ion; a fraction will do which is sufficient to overcome the potential barrier which separates the state of equilibrium of the water molecule adjacent to the ion from the state of equilibrium in a more remote position. These partial energies are marked with Δ h (for ion - water) and Δw (for water - water). $\Delta w > \Delta h$ because of the fast decrease of energy of interaction between two water molecules with increasing distance. The case $\Delta h < \Delta w$ corresponds to negative hydration. Δh is in the inverse ratio to the radius of the ion. With small radius of the ion, it might be that $\Delta h = \Delta w$, i.e. there might be a transition from the range $\Delta h > \Delta w$ to $\Delta h < \Delta w$. Thus, the radius of the ion determines the limit between positive and negative hydration. Therefore, not only interactions between particles with long-

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distance effect but also those which decrease quickly with increasing distance are important for various properties of solutions. The determining effect of the structure of water on the structure of diluted electrolyte solutions is related to it. There are 1 figure and 4 references, 3 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova (Academy of Sciences of the USSR Institute of General and Inorganic Chemistry imeni N. S. Kurnakov)

SUBMITTED: November 21, 1957

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5(4)

AUTHORS: Prokhorenko, V. K., Samoylov, O. Ya. Fisher, I. Z.

SOV/20-125-2-33/64

TITLE: Asymmetry in the Distribution of the Coordination Number of Molecules in Water (Ob asimmetrii raspredeleniya koordinatsionnogo chisla molekul v vode)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 356-358 (USSR)

ABSTRACT: The investigation of the coordination numbers of liquid particles leads to the problem of determining the distribution function of the probabilities w(z) of the coordination numbers z(z = 0,1,2,..) in concrete liquids. If this distribution is a Gaussian one or if it is sufficiently similar to a Gauss distribution, it is necessary, for the construction of w(z), to know only $\overline{z}$ and $\overline{(\Delta z)^2}$. However, w(z) is probably in reality not so symmetric as Gauss distribution, and this fact may be of essential importance in order to be able to understand the microstructure of the liquid. Possibly, it is

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Asymmetry in the Distribution of the Coordination Number of Molecules in Water

necessary that, in the case of liquids with sufficiently close molecular structure, the fluctuations of the coordination number towards a decrease of this number and in the case of a less close molecular structure those towards an increase of this number predominate. Special interest is caused by the extremely fine structure of the water. At present the fact has been established with sufficient certainty that in water, in the sense of the short range order, the structure of the ice remains essentially conserved. Reference is made to several earlier papers dealing with this problem. The authors then carry out a quantitative determination of the asymmetry of the fluctuations of the coordination numbers. The quantities $\overline{z}$ and $\overline{(\Delta z)^2}$ are assumed as being known. Next, the sign and the approximate amount of asymmetry of the distribution $w(z)$ is determined by the sign and by $\overline{(\Delta z)^3}$. For the accurate computation of $\overline{(\Delta z)^3}$ it is necessary to know the fourth correlative function $F_4(q,q', q'', q''')$ of the liquid particles, whereas from the radiographic data only the binary function

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$F_2(q,q')$ can be determined. The authors therefore refrain from carrying out an exact computation, and instead of determining $\overline{(\Delta z)^3}$, they determine $\overline{(\Delta N)^3}$, - the average cubic deviation of the number of particles from their average value in a certain arbitrarily located liquid volume, which is as great as the volume occupied by the selected liquid particle and its first coordination sphere. By such a modification the problem will hardly be essentially distorted. In this case the rule $\overline{(\Delta N)^3} < 0$ must apply. For the evaluation of the value and sign of $\overline{(\Delta N)^3}$ it is necessary by approximation to use the known semi-thermodynamical theory of fluctuations which is based upon the Boltzmann principle. However, when expanding the thermodynamic potential in a series with respect to the powers of the deviation Δv, it is necessary, besides the quadratic terms $(\Delta v)^2$, to take also the higher terms into account. The distribution of the volume fluctuations or the number of particles is then no longer Gaussian. There follows a rigorous

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On the Asymmetry of the Distribution of the Coordination Number of Molecules in Water

SOV/20-125-2-33/64

statistical evaluation of $\overline{(\Delta N)^3}$. The corresponding operations supply negative two-figure values of $\overline{(\Delta N)^3}$ for two tightly packed liquids, viz. argon and mercury, near melting temperature. This also corresponds to the results of the above-mentioned semi-thermodynamical theory. For water, $\overline{(\Delta N)^3} > 0$ is found in all cases; $\overline{(\Delta N)^3}$ decreases with increasing temperature. There are 1 table and 11 references, 7 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)
Belorusskiy gosudarstvennyy universitet im. V. I. Lenina (Belorussian State University imeni V. I. Lenin)

PRESENTED: December 10, 1958, by I. I. Chernyayev, Academician

SUBMITTED: December 2, 1958

Card 4/4

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001447010005-9

5(4)
AUTHOR: Samoylov, O. Ya. SOV/20-126-2-29/64

TITLE: The Coordination Number and the Translatory Motion of Particles in Aqueous Solutions of Electrolytes (Koordinatsionnoye chislo i translyatsionnoye dvizheniye chastits v vodnykh rastvorakh elektrolitov)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 2, pp 330-333 (USSR)

ABSTRACT: Already on frequent occasions a connection between the coordination number of particles in a liquid and their translatory motion was shown to exist. The author endeavors to give a quantitative characterization of this connection (for the aqueous solutions of electrolytes, which are of the most interest in this case). The following considerations probably apply in the same degree to aqueous solutions of electrolytes and also for some other liquid solutions (e. g. for melts in salt systems). The author investigates the translatory motion of water molecules in diluted aqueous solutions of electrolytes containing relatively weakly hydrated ions. The author here makes use of the simplification that the water molecules may exist in 2 states in the

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solutions under investigation: (i) in the nearest neighborhood of the ions, and (0) in the "free" water. "Free water" here means the totality of such molecules as, at the given moment, do not belong to the nearest neighborhood of the ions and therefore have only other water molecules as their immediate neighbors. $(H_2O)^o$ here denotes such molecules as, at the moment concerned, are in the neighborhood of these "free" water molecules. The author here investigates the shiftings (= the activated jumps) of the water molecules from the immediate neighborhood of ions into that of the $(H_2O)^o$-molecules and vice-versa. Probably these are the water molecules between the states i and 0. Calculations are followed step for step. The authors obtain the following values for the variations of coordination numbers in the case of a temperature increase by 10^o: $\Delta n_{Na^+} = +0.004$ and $\Delta n_{K^+} = +0.10$. There are 4 Soviet references.

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